

# THE SUBMINIATURE TIMES

The Subminiature Times is published monthly by Doylejet, P.O. Box 60311, Houston, TX. 77205

Supporting 110, 16mm, 9.5mm, 8mm, 4mm, 1mm, Microdot, & Electronic Still Photography.



## Collection

With any luck at all, the detail in this incredible photo survived reproduction, and you are enjoying the sight of subminiature cameras 14 deep to the horizon!

It's the handiwork of Frank Cameron, of Selma, Alabama. A brilliant 8 x 10" color print can be yours if Frank receives orders for at least 20 prints. Remittances sent after May 15, will be returned.

One of the biggest surprises in the color print is the number of gold editions: Richo-16, Minox, Micro-16, and others we have yet to identify. Whole families side-by-side. It's quite an eyefull.

Frank Cameron, 721 Dallas Ave., Selma, AL. 36701.

## Minox

9.5mm is hot. New cameras, films, and accessories are available with more on the way. All this activity adds another breath of life to the venerable 8 x 11mm Minox format. (See list pg. 2.)

Whatever your needs: right angle viewfinders, exotic cameras in cases that look like everything but cameras, are all available on a ship-now basis.

The Minox Processing Lab sets a standard for processing excellence. The retail outlets have cameras in stock for your comparison.

In addition to the items listed, Microtec has 9.5mm film splitters and EMPTY CASSETTES (10 per bag @ \$30 per bag.)

**AAA CAMERA EXCHANGE**, 43 Seventh Ave, NYC, NY. 10011. (212) 242-5800. Minox cameras, some accessories. Film: Agfa Pan, Minoxcolor, T-Max, Tech Pan, and Ektar w/processing.

**ADORAMA**, 42 W. 18th St., NYC, NY. 10011. (212) 741-0052. A photographic supermarket. Good selection of Minox cameras including the LX Black.

**B & H PHOTO-VIDEO**, 119 W. 17th St., NYC, NY. 10011. (212) 807-7479. Minox 9.5 and 35mm cameras, flash, accessories, and film w/processing.

**CAMBRIDGE CAMERA EXCHANGE**, Seventh Ave and 13th St., NYC, NY. 10011 (212) 675-8600. Minox cameras, flash units, and accessories in stock. Film: Agfa B&W, Minocolor w/processing.



**GMI PHOTOGRAPHIC**, 1776 New Highway, Farmingdale, NY. 11735. (516) 752-0066.

-Has the new Acme MD, and the removeable MDX flash that gives 1000 flashes per battery. Film: T-Max, Tech Pan, Ektars, Kodacolor Gold, Fuji Super HG 100, and Fuji Super HG 400 w/processing (jumbo prints.)

**MICROTEC**, P.O. Box 9424, San Diego, CA. 92169-0424. 1-800-755-ISP. World's largest catalog of current Minox and Robot spy cameras, disguised cases, copy cameras, built-in IR. Flash: Strobe, cubes, bulbs. All film emulsions w/processing. Also subminiature Minolta B & W or color plus specialized subminiature services.

**MINOX PROCESSING LABORATORIES**, P.O. Box 1041, New Hyde Park, NY. 11040. Very helpful. Large selection of films w/processing. High volume or one roll, overnight. No empty cassettes, however. (516) 437-5750.

**SMILE PHOTO**, 29 W. 35th St., NYC, NY. 10001. 1-800-366-6993. Minox cameras, pocket tripods, flash. Film: Agfapan 36, Minoxcolor, Minochrome w/processing.

SEE ALSO "How to Repair Your Minox" by Dr. W. White, "Shutterbug", March, 1992.



### GRIND YOUR OWN LENS.

(Conclusion of two part series.)

Mount the tubular grinding tool on the shaft of a small DC hobby motor. The motor itself should be mounted on a small board with the shaft extending vertically upward. A few dabs of silicone rubber will hold it in place. A 0.4 inch (1 centimeter) length of small brass tubing about 0.04 to 0.1 inch (1 to 3 millimeters) in diameter (2/3 the diameter of the lens) should be carefully soldered onto the end of the motor shaft so that it is accurately centered along the rotational axis of the shaft. Brass tubing is available from hobby and craft shops.

Use silicon rubber to attach a small perforated copper disc at the bottom of the shaft just above the motor. This will keep abrasive from falling into the motor bearing. Use a variable voltage DC power supply with a convenient switch to power the motor. Make a splash shield to catch flying abrasive slurry from a short section of a sheet metal cylinder such as a tin can. Mount the shield on the board so that it surrounds the motor and extends just above the top end of the tube.

Now you can begin to grind a lens. First, rough out the hand held blank by running it back and forth along the length of the copper channel with #120 carbide slurry while twisting the blank at a constant rate. After the convex blank is wiped clean, begin the fine grinding. Touch the lens blank to a little of the #600 carbide slurry. At first, set the motor to rotate at a fairly low speed while the lens blank mounted on its spindle is held in your hand at an angle from the vertical. Press lightly against the rotating tube while twisting the lens spindle between your fingers. So the lens blank and the inside rim of the brass tube will begin to develop matching spherical surfaces. Once these curvatures are established, set the lens spindle in place to rotate automatically. Periodically apply a little abrasive slurry to the zone

of contact with a toothpick. The angle of contact between the tool and spindle must be such that the center of the lens spindle rests against the rim of the tube, or a circular island of unworked glass will be left in the center of the lens.

Avoid using high pressures and high speeds during the various grinding stages to speed up the process. Too much pressure tends to cause deep scratches, lopsided wearing of the brass tube, and an uneven curvature to the finished lens. High speeds cause vibration and chattering. Fairly low speeds and low pressure during the grinding stages give the best results. During the polishing stage a higher pressure gives the best results. It appears likely that the optimum conditions during each stage are such that the film of abrasive or polishing compound is squeezed just then enough that a single layer of particles is present between the glass surface and the brass tool, a condition that is a function of speed, pressure, and particle size. If the beveled inside rim of the tool wears unevenly, it can be dressed by increasing the motor speed and pressing the corner of a file against it.

Periodically, remove the glass, wipe it clean for inspection under magnification, and add fresh abrasive. The 5 micrometer alumina should give a semi-polished appearance. When the glass surface appears to be completely spherical with a uniform, velvety finish under magnification, it is ready to be polished.

Polishing materials such as iron oxide may be used, but, in any case, the material should be refined to remove all but the finest particles. One way to do this is to stir the fine dry oxide powder with vegetable oil in a small glass container set in a pan of boiling water. Allow the larger particles to settle out until a clear upper layer forms. Remove part of the uppermost layer of the settled suspension with an eyedropper and deposit it on a piece of blotting paper or unglazed tile. The excess oil will be absorbed, leaving behind a thick, mud-like residue of the finest polishing compound and oil.

You can save time by polishing the lens using the 100,000 mesh equivalent grade of oil-based diamond paste sold in small syringes for less than \$10 by lapidary shops. This works best of all. Only a very small amount of polishing compound is required in any case.

The polishing stage demands careful attention and takes longer than any of the grinding stages. First, apply a dab of polishing compound to the lens and set the spindle in place so that it is held by a greater pressure than used for the grinding stage. Adjust the motor voltage just enough to give a moderate speed of rotation without vibration. The lens spindle will rotate automatically and at the proper angle if the rim of the tube presses against the center of the lens as described previously.

If the lens is a small hemisphere, as is desirable for the front element of a compound lens, you must increase the angle of contact of the spindle to perhaps,  $45^\circ$ . At this angle it is difficult to keep the lens seated inside the rim of the rotating tube. One alternative is to arrange for a second spring to press against the rotating shaft of the lens spindle near the lens so that it remains properly seated. An easier way that works fairly well is to hold the lens against the rotating tube at the proper angle with a steady pressure as you rotate the spindle at a constant speed with your fingertips.

Frequently remove the spindle, wipe it clean, inspect it, charge it with fresh grinding or polishing paste, and resume work until the glass is polished over its entire surface. With practice, it is possible to grind and polish a lens surface in less than an hour. Small curvatures are harder to make but can be polished more rapidly.

A good test of the optical quality of a miniature lens during the polishing stage is to view the highly magnified reflection of a light source while slowly rotating the lens spindle. The polishing process may tend to leave a few scratches or pits around the edge of the lens, especially when it is highly convex, but these flaws generally cover a small percentage of the total area and are not a serious problem.

When fully polished, warm the lens to remove it from the spindle and rinse it with acetone or nail polish remover to remove excess dopping wax. If it is to become a biconvex lens, remount in the reversed position and repeat the entire process.

**ALWAYS USE CAUTION WHEN WORKING WITH GLASS. PROTECT YOUR EYES WITH SAFETY GOGGLES. STORE UNUSED GLASS AND GLASS FRAGMENTS AWAY FROM CHILDREN.**





Camera: Minolta-16 MG

#### DEVELOPERS. AN ACCIDENTAL SOLUTION.

While photographing this fire engine it occurred to me that I would prefer to see a long tonal scale in the final print rather than go for the ultimate fine grain negative. The price I always had to pay was the typical thin-developer signature; blocked highlights, and minimum shadow detail. I usually counter it by shooting on overcast days.

With this subject, a face full of shiny metal on a sunny day, the final print would look like a cartoon rather than the more formal tone I wanted because of the flag in the background.

I had been experimenting with HC-110. Call it my imagination but I find that you can develop a surprising amount of subminiature microfilm with the F dilution 'one shot.'

I start with 9 mins. @ 75°F. for the first roll, then add 1 minute to the developing time for all subsequent rolls (any emulsion.) I haven't gone past four rolls, only because I don't accumulate five rolls of undeveloped film.

I laid out four 24-exposure cassettes and started developing them one at a time in the same solution (13.3 ml. stock, plus water to make 200 ml.)

Somewhere along the line I reverted to old one-shot habits. I forgot what I was using and processed all four rolls for 9 minutes.

It was a fortunate accident because the fourth roll, with the fire engine, was slightly underdeveloped. The negative had a tonal quality I wouldn't have predicted with Kodak 1461 microfilm. It prints nicely without paper filters, dodging, or burning in.



At 20 x 24" the grain is creamy smooth but the sharpness is disappointing. Is anyone else working with HC-110?

In 1839 Fox-Talbot  
pioneered photography.



In 1926 Logie-Baird  
invented television.



Today Tamron  
has made the connection.

Introducing the amazing Tamron  
Fotovix III.

The latest in-home entertainment  
equipment that provides a convenient  
link between existing cameras and  
the television.



NOW YOU CAN VIEW  
PHOTOGRAPHS ON YOUR TV SET.

The Fotovix III takes any 35mm  
negative or slide and instantly  
reproduces it in full colour on your  
TV screen. (Negative film is made  
positive by the flick of a switch.)

Then, thanks to the zoom lens,  
any part of the image can be enlarged  
by up to three times.

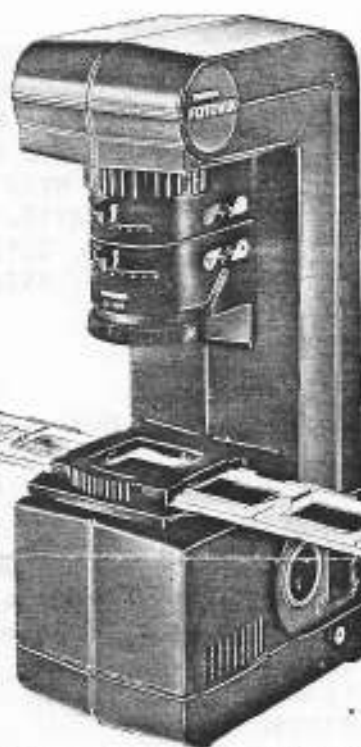


USE EITHER  
TRANSPARENCIES OR  
NEGATIVES.



What's more,  
this image can then  
be recorded on to  
video tape for easy  
storing and viewing.

The whole  
operation couldn't  
be easier. Simply  
insert your neg or



slide into the film carrier, view the  
image on your TV screen, zoom in to  
get the required crop, and then press  
the record button on your VCR.

It's even possible to adjust the  
brightness or colour balance of the

**TAMRON**  
**FOTOVIX III**  
FILM VIDEO PROCESSOR  
TURNS YOUR TV INTO A VIDEO PHOTO ALBUM.

image if necessary.

The Fotovix III is  
ideal for use at home as  
a video photo album as  
well as being a unique  
and enjoyable way to  
view your favourite photographs.



ENLARGE THE IMAGE  
BY UP TO 3 TIMES.



And thanks to  
its compact size it's  
completely portable,  
so it can also be used  
in the classroom or  
to enhance business  
presentations.

For more  
information on the Tamron  
Fotovix III, plus details of your nearest  
stockist, complete and return the  
coupon below.



RECORD THE IMAGE ON VIDEO.

We'll be glad to put you in the picture.

Please send me more information about the Tamron  
Fotovix III and details of my nearest stockist.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

POSTCODE \_\_\_\_\_

Return to: Johnsons Photopia, Hempstalls Lane, Newcastle,  
Staffordshire ST5 0SW Telephone: 0782 717100.

JP 11/95

JOHNSONS PHOTOPIA, HEMPSTALLS LANE, NEWCASTLE, STAFFORDSHIRE ST5 0SW. TEL: 0782 717100. FAX: 0782 717707.

## THE SUBMINIATURE TIMES QUICKFINDER 3/92

Edixa-16	229	BK	Steky III	199	AD
Expo Watch Camera	389	F	Minox B	169	F
Bolsey-8 (movie & still)	200	AS	B	150	47
Bolsey-8 "	149	BK	1st B	170	WD
Golden Ricoh-16	449	WD	1st B	160	WD
Mamiya-16 Automatic	159	AD	1st B	139	WD
MEC-16 SB	239	F	2nd B	169	WD
Micro-16 w/flash	189	F	2nd B	159	WD
Minolta 16	69	WD	C	209	F
16 EE II	79	WD	C	199	WD
16 MG	69	F	C	189	WD
16 MG-S kit	109	B	III	149	WD
16 P	59	WD	III	130	D
110Z	225	BE	IIIS	179	WD
110Z	100	WD	IIIS	169	WD
110Z	89	WD	IIIS	159	WD
Pentax A-110 kit	399	B	LX	499	WD
A-110 kit	279	B	Yashica Atoron	99	C
A-110	140	AS	Yashica Atoron	79	F

AD Adorama, 42 W. 18th St. NYC, NY. 10011. (212) 741-0466.

AS All Seasons Camera, 5 Harvard Lane, Box 111, Hastings on Hudson, NY. 10706 (914) 478-0931

BE Bergen County Camera, 270 Westwood Ave., Westwood, NJ. 07675 (201) 644-4113.

BK Brooklyn Camera, 549 E. 26th St., Bklyn, NY. 11210 (718) 462-2892.

C Cambridge Camera Exchange, 7th Ave & 13th St., NYC, NY. 10011. (212) 675-8600.

D Don Chatterton, P.O. Box 51174, Seattle, WA. 98115. (206) 525-1100.

47 47th St. Photo, 67 W. 47th St., NYC, NY. 10036. (212) 260-4410.

WD Woodmere Camera, 337 Merrick Rd., Lynbrook, NY. 11563 (516) 599-6013.

## THIS LITTLE 110 CAMERA

Recently, S. Haughinberry, of Prairie Village, KS. inquired about the availability of 110 B & W film. I responded "I haven't seen 110 B & W in years, in the interim you can develop Kodacolor II as if it were 200 ISO Plus-X, or respool the cassettes yourself."

I have since been informed that 110 Verichrome Pan ISO 125 is sporadically available through the surplus film outlets.

If you've already started cross-developing or reloading, 110 Ektachrome 64 and Kodacolor II 110-12 (Exp 5/88) are currently ON SALE for 50¢ a roll. To save your time with the calculations, a 20 roll box with shipping costs \$12. S & G, 618 S. 62nd St., Phila, PA. 19143. (215) 474-7663. (Hurry.)

Although the year is still young, the news of the year for 110 will probably be the introduction by Kodak of T-Grain technology to Kodacolor. The new film will probably hit your local shelves mid-summer.

## 9.5mm - 8mm - 4mm - RINGS.

Need some work for your film stripper? S & G also has 126 Fujicolor print film on sale, 25¢/roll.

## FREE CLASSIFIED

"Selling My Collection" Minolta cameras, proxars, filters, tripod adapter, White's "Subminiature", and more.

Allen Klapper

(914) 439-3943

C/O CAE P.O. Box 370

Livingston Manor, NY 12758

Cassettes: Steky-16, Yashica-16 \$10 ea.  
"Subminiature Times" back issues: #1 to #5, and #33 to current \$2 ea. "The 1992 Guide to Popular Subminiature Cameras" \$10.  
Please include 10% S & H Domestic, 20% International. Al Doyle P.O. Box 60311, Houston, TX. 77205.

TINY MATCHBOOK VIDEOCAMERA, Under \$200! TV Transmitters! R/C Airborne Microvideo, Surveillance Catalog, \$3.00. KLINDWORTH KAWAI, 1403-E Bayview, Hermosa Beach, CA 90254.