

without letting variations in the speed of the four-track recorder during the mix effect sync or sound fidelity.

Unless you transfer your sound to 16mm fullcoat and use a professional mixing studio, you will have to mix your sound the traditional way — that is without sync rollback capability.

Before the invention of phase-erase record heads (which allow a mixer to stop at any point, simultaneously roll the tracks back, and re-record a segment with no noticeable transition) all sound mixes were done in 10-minute reels without stopping. If there was a mistake, the mixer simply had to go back and redo the 10-minute segment.

For this reason it is a good idea to first perform a trial mix in order to set the prelevels for the independent channels on the mixer, to establish the mixing balance between channels, and to draw-up a cue sheet noting reference numbers on the footage counter of the multi-track for each desired effect.

### The Cue Sheet

As detailed above, the mixing of multiple soundtracks require fine adjustments in the relative volume of the independent channels. As the number of variables in a mix grows, some form of notation is required to cue desired changes in level during the mix in order to avoid mistakes. So that this information is available at a glance, it is a good idea to draw up a cue sheet with symbolic indications for desired effects and track levels.

A cue sheet typically consists of a column showing the main points of the action; and opposite this, columns for each soundtrack showing the cuts in and out of sound with symbolic indications of fades and mixes and clearly marked footages. To this is added a column with notes on loops, and tape and disc effects that may also be used at particular points.

When drawing up a cue sheet, each change that is required is best cued from a reference number on the multi-track recorder. On a quarter inch recorder, the 000 point can be determined by lining up a prescribed mark on the tape with a guidepost; on a cassette recorder by completely rewinding the cassette. From there you can advance each track and note the exact number where each section of sound begins and ends, as well as the number for each desired effect. In addition, you can go back and forth,

manipulating levels until a proper balance is established. All of this information is noted on the cue sheet so that you will be able to repeat these changes when the tracks are finally mixed.

### THE TRANSFER BACK TO STRIP

Once a satisfactory mix is achieved, the mixed composite track is transferred back to the film's magnetic edge stripe using a double system projector and Super8 Sound Recorder. A double system projector is simply a projector that has been modified to generate a once-per-frame pulse — a simple and inexpensive modification to any projector.

In the transfer to stripe, again it is the Super8 Sound Recorder that maintains sync, but this time, against the once-per-frame sync reference pulse generated by the projector. All that is required is that the Super8 Sound Recorder be started in sync with the projector.

A sync start is accomplished using the PhotoStart. The flash frame of the picture startmark can be used to trigger the PhotoStart to begin the transfer of the mixed soundtrack from the Super8 Sound Recorder to the film stripe in the projector; but again the first startmark on the soundtrack will have to be displaced to the right in the Super8 Sound Recorder for a perfect sync start. Once the required displacement for a perfect sync start has been found by trial and error — a positive indication being that the second beep-tone on the soundtrack sounds when the second flashframe on the film's leader passes through the projector gate — it will remain constant.

This procedure will then produce a perfect sync start between picture and sound every time; and the mixed soundtrack can be transferred in sync to the film's magnetic stripe for single system projection. To take advantage of the greater frequency response of the Super8 Sound Recorder you can also project double system syncing the sound to the picture this same way.

### CONCLUSION

In summation, the Super8 Sound Recorders are the heart and brains of double system Super 8 filmmaking — they integrate non-sync cameras, multi-track recorders, and projectors in a system of sync filmmaking. The only other components required for successful sync sound filmmaking are a double system

editing bench and PhotoStart. Like a puzzle, once you have fit these pieces together in an integrated process of filmmaking your picture will be complete.

### BEGINNING DOUBLE SYSTEM SUGGESTED READING:

*The Super 8 Book:* A comprehensive, though somewhat outdated guide to single and double system Super 8 filmmaking equipment and technique, by Lenny Lipton.

*Independent Filmmaking:* Lenny Lipton's classic on not only the techniques, but also the philosophy and aesthetics of independent filmmaking.

All of the above titles, and many more, are available through Super8 Sound's Booklist.

### BEGINNING DOUBLE SYSTEM Equipment

#### Beginning Double System Camera

Any camera equipped with a P.C. flash contact can be used for double system filmmaking. The only requirement is a P.C. sync cable between the camera and the Super8 Sound Recorder.

#### Super8 Sound Editing Bench

The Super8 Sound Two Gang Editing Bench has become the standard for filmmakers who are working in double system Super 8 and editing with Super 8 fullcoat. Their popularity is partly due to their low price (about one third of a comparable horizontal editing table), but also because the two gang bench incorporates all the traditional editing techniques of 16mm filmmaking, yet overcomes many of the problems usually encountered in editing with a sync block and rewinds.

#### • 24fps Motor Drive

The rugged two-gang synchronizer is driven at sound speed in the forward direction by a heavy-duty motor. This drive system reproduces both voice and music intelligibly, as well as providing a means to accurately time the film. The motor is operated by a convenient foot switch which also engages an electric clutch. The clutch instantly engages or disengages the motor from the syn-

chronizer, which allows for accurate dialogue cutting and a quick transition from motor-driven sound speed to hand-drive rapid traverse.

Each bench is supplied with an 18fps conversion kit.

- **Sliding Magnetic Head Assembly**

An unusual sliding magnetic head assembly permits sync "tuning" while running at sound speed over a range of 12 frames in either direction from a reference point in line with the viewer. This simplifies finding sync in difficult passages, such as scenes with no clapmark.

- **Differential Rewind Adapters**

Differential Rewind Adapters allow Super 8 reels to fit on 16mm rewind shafts and eliminate the familiar problem of "reel banging" in order to take up slack caused by reels of different diameters on the same shaft. Because the adapters provide true differential action between the reels of sound and picture, they allow the editor to move either strand independently without having to spend time adjusting clamps and spacers.

- **Roller Outriggers**

A pair of roller "outriggers" have been added to the sync block. These "outriggers" pull the film free from sprocket teeth when the synchronizer's regular roller arms are released and hold the film in the synchronizer rollers for fast forward and rewind of both strands, or one strand while the other is held still. They also help reduce the time spent removing and repositioning either strand whenever it must be taken out of the synchronizer.

- **Bright Viewer**

The Super8 Sound Editing Bench incorporates a modified Minette S-5 viewer, which has the brightest, sharpest image of any Super 8 viewer on the market today.

The Editing Bench comes complete with a pair of professional 16mm rewinds, a pre-drilled 2' x 4' formica board, and all the necessary mounting hardware. Legs are an optional extra.

### Super8 Sound PhotoStart

The PhotoStart is an automatic remote switch used to trigger sync starts of the Super8 Sound Magnetic Fullcoat Recorders with multi-track recorders and

double system projectors for transfers of sync sound and mixing. The PhotoStart is triggered by a flashframe on the picture leader, or 1000Hz BEEPtone on the soundtrack leader. Purchase of a PhotoStart as an accessory is not necessary for the Mag IV, as it is supplied with the recorder.

### Double System Projectors

Any projector can be modified to run in sync with the Super8 Sound Recorders I, II, and Mag IV — all that is required is that the projector be modified to generate a once-per-frame pulse. Super8 Sound can install a 1/F contact switch in any sound recording projector, or you can modify your projector with the Projector Sync Modification Kit. This is a simply kit of materials including: magnetic reed switches, magnets, mounting strips, adhesive, cable with wired DIN plug and a set of basic installation instructions.

### THE FOSTEX X-15 MULTI-TRACK CASSETTE RECORDER

The Fostex X-15 will enable you to mix voice-overs, narration, sound effects, and music tracks with original sync dialogue as described in "Basic Double System Filmmaking."

The Fostex has such important double system mixing features as independent record channels and the capability to record straight across from a pre-recorded track. A single playback/record head allows you to playback a previously recorded track, in sync with a track being laid down via the record head; and not through a separate monitor or playback head some distance away, which would introduce a delay. This feature enables you to monitor sync

between tracks during transfers to the Fostex. The Fostex X-15 also features individual playback level controls for each channel so that you can mix right off the recorder without having to go through a separate mixing board.

The sound recording fidelity of the Fostex X-15 is comparable to that of reel-to-reel recorders costing three times as much. It has built-in Dolby B noise reduction circuitry to eliminate the inherent high frequency noise of cassette tape; and uses a high bias metallic (CrO<sub>2</sub>) tape for greater signal to noise separation — such features all but eliminate the sound advantage quarter inch tape machines have enjoyed in the past.

These features and the Fostex's low price make it perfect for double system Super 8 filmmaking.

### SPECIFICATIONS

#### Fostex X-15 Four Track Cassette Recorder

FORMAT: Portable 4-track tape recorder with two tape heads and "simul-sync" capability.

TAPE: 1/8" cassette tape, C-60 or C-90, IEC Type II for use at high bias position (Cr)2

TRACK SYSTEM: 1/8 Track

TAPE SPEED: 1 7/8 ips, with variable speed control

NOISE REDUCTION SYSTEM: Dolby B

RECORD LEVEL METER: LED Peak Level Indicator

MIC INPUT IMPEDANCE(X2): 10k Ohms or less

LINE INPUT IMPEDANCE(X2): 20k Ohms

LINE INPUT (Stereo): 10k Ohms or more

TAPE OUTPUT(X4): 10k Ohms or more

RECORD TRACK: 4 Track, one direction

RECORD CHANNEL: 4 with Dolby NR type B in encode mode, records up to 2 tracks at a time.

PLAYBACK CHANNEL: 4 with Dolby NR type B in decode mode

TAPE SPEED: 1 7/8 ips

FREQUENCY RESPONSE: 40-12.5 kHz

SIGNAL/NOISE RATIO: 60 dB

DIMENSIONS: 3" x 11 1/2" x 7 3/4"

WEIGHT: 4.6 lbs.





# The Mag IV

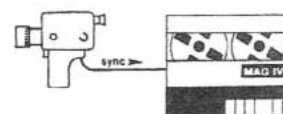
## TECHNICAL SPECIFICATIONS

<b>Audio Specifications:</b>	
Running Speed:	24 fps (4 ips); 18 fps (3 ips) using Super 8 magnetic stock 24 fps (7.2 ips) using split 16 magnetic stock
Head Configuration:	Three heads for source or tape monitoring
*Frequency Response:	20-16,000Hz $\pm 1$ db
*Signal/Noise:	66db
*Record Time:	5" reel, 19 minutes on 3 mil. Super 8 Mag Stock
*Wow and Flutter:	$\pm 0.18$ (rms)
Microphone Input:	*These Audio Specs are for 24 fps using new 341 Super 8 Mag Stock For all low impedance mikes. Power supply for condenser mike. Locking connector. Remote control capabilities. .1mv-40mv 200 ohms unbalance.
Radio/Phono Input:	For connecting recorder to amplified system, for line level in (phono) 1mv-400mv 10k, (radio) 50mv-2v 470k
Monitor/Output:	For connecting recorder to amplifier system, for line level playback and tape dubbing 775mv (0db) 5.6k
Headphone:	1/4" phone plug for headphone or external speaker, min. 4 ohms
<b>Cable Sync:</b>	
Once Per Frame:	Any 1/F signal within 20% of the normal running speed selected. 19.2-28.8 for 24 fps setting. 14.4-21.6 for 18 fps setting. Voltage swings must be 500mv minimum; 5m maximum. Virtually any wave form or switch contact which has a 1/f repetition is acceptable.
Pilotone:	Sine wave, 1 volt RMS or any 60Hz signal between .7 4 volts RMS. Input impedance. 15K ohms (50Hz available)
Sync Output:	50/60 Hz from Uher Power Pac or a once per frame exact reference of running speed
Crystal Sync:	Internal lock to 24 fps crystal for precision running speed accurate to (PLUS-MINUS SYMBOL) 1 frame in 13 minutes (25 fps available)
Sync Socket:	Locking 5 pin din
Sync Display:	Built in sync meter
<b>Power Requirements:</b>	
	6-7.5v 5 alkaline cells or Nicad Power Pac. AC Power Adapter which will recharge Nicad Power Pac. Both are physically constructed to fit inside machine's battery compartment. AC Power Pac is universal, 110 or 220v. Operation life on fresh batteries is 5 hours.
<b>Construction:</b>	
Weight: 8 lb (3.6 kg)	Sturdy, low weal, all metal casing of die cast aluminum.
	Dimensions: 11.2" x 3.75" x 8.4" (28.5 x 9.5 x 22.7 cm)
<b>Other Features:</b>	
Remote Control (Photo Start IV):	The photo Start is a hand held device which can be plugged into the AV socket and will electronically start the record trigger by light, sound, or manually. The remote is used for precise sync starts with projectors, cassette recorders, or any other application requiring a precise start.
Reel Locks:	Lock down of supply and take up reels
Sensor Roller:	For tape tension regulation
Modular Circuitry:	All sync circuitry is concentrated on to one circuit board that can be unplugged and easily removed from the tape recorder. This allows the basic machine to be serviced independently of the sync circuitry by any competent tape recorder service organization. If the sync circuitry should be in need of repair, the board can be returned to Small Format for immediate attention.

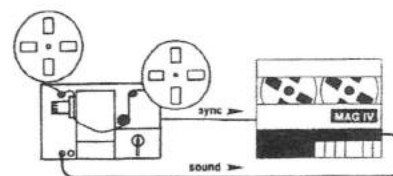
Our most sophisticated Super8 Sound Recorder, the Mag IV is used in many sync sound filmmaking applications. As a location recorder the Mag IV will record sync sound directly onto magnetic fullcoat and is compatible with any camera with a P.C. flash contact — no modification to the camera is required. The Mag IV also has a built-in crystal oscillator for use with crystal controlled cameras.

As a laboratory resolver, the Mag IV will resolve single system sound or sync sound recordings, made with Pilotone or Digital sync reference signals, to magnetic fullcoat for double system editing. As a transfer recorder the Mag IV will transfer sound in sync onto, or from multi-track recorders for double system mixing, and double system projectors for transfer to magnetically striped film

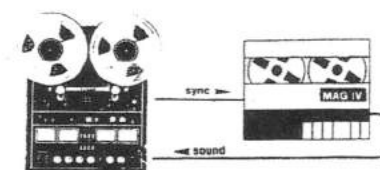
## ON LOCATION



## WITH PROJECTOR



## WITH MULTIPLE TRACKING





by Guy Holt

Advanced Double System filmmaking further builds upon the foundation laid in Beginning Double System filmmaking with the introduction of new production tools and filmmaking techniques.

## CRYSTAL SYNC

One of the most important factors in bringing Super 8 up to professional standards was the development by Super8 Sound of a crystal sync system. Preferred by professional filmmakers for its flexibility, crystal sync has several advantages over other sync sound systems.

Super8 Sound's crystal sync system is based on two quartz crystals which have the property of oscillating at a constant frequency, and can therefore serve as extremely accurate sync references. The crystal camera control matches the speed of the camera to the crystal oscillator at precisely 24 frames per second. A companion crystal is the basis of an equally precise control of the sound recording.

Such control of the camera and recorder ensure sync without an interconnecting cable. The cinematographer can therefore choose camera angles and execute camera moves without concern for mike placement or compromising sound recording. The sound recordist can likewise place microphones for optimum recording without compromising camera angles or mobility. Crystal controls allow for great angles, tight miking, and complete freedom of mobility, and yet it's all in exact lip-sync with the accuracy of a quartz watch.

Crystal controls will enable the use of multiple cameras and recorders. Multiple cameras are essential for comprehensive coverage of non-repeatable phenomena such as concerts, sporting events, news events, or important interviews. Multiple sync recorders will capture sound from different perspectives.

Modelled after the crystal sync controls universally employed in 16mm and 35mm filmmaking, Super8 Sound's crystal sync system is compatible with the larger film formats. Since it uses the industry standard 60 Hz pilot-tone sync signal, our latest crystal cassette recorder, the LXR-6 (a modified Sony WMD-6), can be used for sync sound by 16mm and 35mm filmmakers as well as by Super 8

# Advanced Double System Filmmaking



filmmakers. With crystal controlled cameras, like the Nizo 6080 and the Beaulieu 7008 Pro, Super 8 filmmakers can record sync sound on a crystal Nagra for optimum sound recording.

## Crystal Camera Control

The crystal camera control matches the speed of a Super 8 camera to a quartz crystal oscillator at precisely 24 frames per second, allowing cableless sync sound filmmaking with a Super8 Sound Recorder, or crystal cassette recorder like the LXR6 or Uher CR160 AV.

The camera control governs camera speed by deriving the frame-rate from the 1/f.P.C. contact, and comparing it with the crystal reference. The phase difference between the frame rate and the oscillation of the crystal provides the basis of a moment-to-moment servo control of the camera motor speed. The camera control interrupts the power to the motor circuit if the camera is running too fast, or boosts the power if the camera is running too slow. In this way, the camera control locks the camera speed to the crystal reference at exactly 24 f.p.s.

The camera control is accurate to within one frame in 14,400 frames (10 minutes) — which, for all practical purposes, is precisely accurate, since the average shot is little over three minutes long. The camera control is about the size of a matchbox, and attaches directly to

the camera body which serves as its power source.

Super8 Sound has engineered camera controls for the Nizo 6080, 6056, and all models of Nizo silent cameras (this includes the 481 Macro, 561 Macro, 801 Macro, and 800P, as well as older models in these series). Super8 Sound as yet has not developed a camera control for the Nizo Integral series (Integral 5, 7, & 10 cameras).

Super8 Sound offers two Beaulieu camera controls — one for the silent cameras and another for the single-system sound models. Super8 Sound has not yet developed a camera control for the Beaulieu S Series cameras (6008S, 7008S). Beaulieu cameras do not need modification to work with the camera controls. However, an Erlson 1/F switch is required.

The Super8 Sound Bauer camera controls will control the speed of the S715XL and S709XL microcomputer cameras. Cameras to be crystal controlled must be sent to Super8 Sound for necessary modifications.

## Super8 Sound Recorders

As location recorders, the Super8 Sound Recorder I, II, and MAG IV can record sound in sync with any crystal controlled camera without a connecting cable. The Super8 Sound Recorders record sync sound by conforming their speed to a built-in quartz crystal oscillator

identical to the one governing the camera motor speed.

The Super8 Sound Recorders accomplish this by comparing the internal crystal sync reference with an electronic pulse generated optically by a light emitting diode shining through the perforations of the magnetic fullcoat as it passes through the recorder. The phase difference between the optically produced pulses and the oscillation of the quartz crystal provides basis for a moment-to-moment servo control of the rate of the magnetic fullcoat. In this way the Super8 Sound Recorders lock the speed of magnetic fullcoat to the quartz crystal at exactly 24 f.p.s.

Such precise speed control of both the recorder and camera insure that for each frame of film exposed in the camera, exactly one sprocket hole of magnetic fullcoat passes the recording head of the Super8 Sound Recorder. Hence, there is produced for every frame of picture on film a corresponding frame of sound on fullcoat. With equal lengths of fullcoat as film for each scene, picture and sound can then be locked in frame-for-frame correspondence on an editing bench or table to maintain sync during viewing and editing.

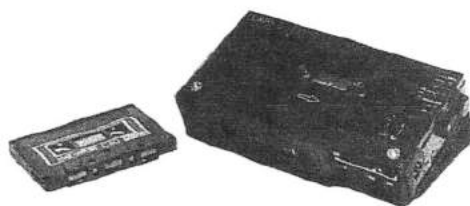
### Crystal Cassette Recorders

The crystal cassette recorders work somewhat differently. The speed of the recorder is not regulated in any way. Rather, a built-in crystal oscillator generates an unvarying 60 Hz sine wave. Called a pilot-tone, this sync reference signal is recorded parallel to the location sound on one track of the cassette tape and serves as the basis for dubbing the sound in sync to magnetic fullcoat later.

When location sound is transferred from tape to magnetic fullcoat for editing purposes the pilot-tone recorded parallel to the location sound serves as an indication of the cassette recorder's speed fluctuation at the time of filming. Using this sync reference, the Super8 Sound Recorder varies its speed to track not only the fluctuation in the cassette recorder's speed at the time of filming, but also any fluctuation as the cassette recorder plays back the sound.

This process, known as "resolving," works on the principle that every  $2\frac{1}{2}$  cycles of the crystal generated sine wave equals one frame of film exposed in a crystal controlled camera. When resolving location sound the pilot-tone

is played back to the Super8 Sound Recorder's servo-control. The servo control makes moment-to-moment corrections of the Super8 Sound Recorder's speed based upon the phase difference between the pilot-tone and the optically generated pulses. In this way, the Super8 Sound Recorder is able to constantly modify its speed to track speed fluctuations in the cassette recorder. Resolving location cassettes in this way provides a corresponding frame of sound on magnetic fullcoat for every frame of picture on film, without letting fluctuations in the speed of the location cassette recorder affect sound fidelity.



With equal lengths of magnetic fullcoat as film for each scene, picture and sound can be locked in frame-for-frame correspondence, on an editing bench or table, to maintain sync during viewing and editing.

There are three major advantages to recording location sound on crystal cassette recorders. Cassette tape is the least expensive tape format available. Cassette recorders are the most portable method available of recording location sync sound. Finally, location sound recorded on cassette tape can be filtered and sweetened with a graphic equalizer while resolving to magnetic fullcoat (see Equalization below).

The cost of cassette tape being one sixth that of magnetic fullcoat, considerable expense can be saved by recording location sound in sync on cassette and transferring only the sound accompanying good takes to magnetic fullcoat.

The Sony Walkman Pro is extremely portable. No larger than a paperback book, its light, compact construction is a great asset in the field. If necessary it can easily be carried by the camera operator, eliminating the need for a sound recordist. The Walkman's portability however, is not at the expense of sound fidelity. Since the introduction of Dolby noise-reduction circuitry, the main drawbacks of cassette

recorders — their slow tape speed (only 1 7/8 ips) and high noise level — have largely been overcome. And despite the tiny size of the recording area on cassette tapes, modern tape designs have nearly eliminated the sound advantage that the 1/4 inch reel-to-reel tape machines have enjoyed in the past.

Another advantage to the Sony Walkman Pro is that location sound can be encoded with Dolby noise reduction, and transferred to fullcoat magnetic film while still encoded. The sound can remain encoded over successive generations of re-recording, up to the stage of mixing with another sound track, thereby effectively eliminating accumulated tape noise.

### Resolving

If location sound was not recorded directly onto magnetic fullcoat with a Super8 Sound Recorder, but rather recorded single system in camera or double system with a crystal cassette recorder, the first step of post-production — called "resolving" — is to transfer it in sync to magnetic fullcoat for editing.

When resolving from location tapes, it is best to play back the original sync sound on the same recorder used to record it. The pilot-tone sync reference signal from the tape is routed to the servo-control speed-matching circuitry of the Super8 Sound Recorder, and the audio signal to the line input.

Using the pilot-tone as an indication of the recorder's speed at the time of filming, the Super8 Sound Recorder varies its speed to track not only any fluctuation in the cassette recorder's speed at the time of filming, but also any fluctuation as it plays back the sound. It produces one frame of sound on magnetic fullcoat for each frame of picture exposed, without allowing fluctuations in the speed of the recorder affect sync or sound fidelity.

If the original sync sound was recorded in the camera on the film's magnetic stripe, it can be resolved to magnetic fullcoat, for double system editing. The process is similar to resolving from a tape recorder, except that in this case the Super8 Sound Recorder uses as its sync reference a digital pulse generated by the projector playing back the sound on the film. All that is required is that the projector be modified to generate a once-per-frame pulse — a simple and inexpensive modification.

Regardless whether the sound was recorded in the camera or double system on a location recorder, the transfer level while resolving is kept as high as possible, without overmodulating in order to minimize system and tape noise. To aid in establishing this optimum transfer level, it is a good idea to have recorded before filming a reference tone (a constant 1000Hz tone, recorded at -7 decibels on the first few feet of audio tape).

## TEST TONES

Such a reference tone, called a "test tone," helps to match the transfer level to the original recording level, guaranteeing that sounds not over-recorded at the time of filming will not be in the transfer. Simply leveling the test tone at negative seven decibels on the Super8 Sound Recorder will ensure that location sound is not transferred too high (resulting in overmodulation), too low (reducing its separation from system noise), but rather at the optimum level with the same signal to noise ratio as it was recorded. For this reason, one should be recorded whenever possible. A test tone can be generated by the test tone generator found on many mixing boards or with the Fostex Test Tone Generator.

## EQUALIZATION

At this stage, the name of this process is the function as well — to make the recorded sound equal to the original. Equalization is almost always essential while resolving to magnetic fullcoat and while mixing (see mixing), and so a good graphic equalizer is the first studio equipment investment you should make.

A graphic equalizer divides the audio spectrum into bands of frequencies, usually at octave intervals. A slide control, called a "potentiometer," controls the volume of each band, enabling the frequencies in each band to be selectively boosted or cut by 12 dBs. By permitting the selective emphasis or de-emphasis of frequencies throughout the audio spectrum, graphic equalizers enable you to manipulate location sound.

When resolving from cassette tape, sound is equalized in order to compensate for defects inherent in the cassette format. At the slow 1 7/8 inches per second tape speed of the cassette format, the mid to high frequencies, or the treble, require a boost in volume (known as a "mid-lift") during the transfer to magnetic fullcoat in

order to sound more like the original.

In fact, because treble invariably gets soaked up during the process of re-recording over and over again, it is a good idea at the resolving stage to boost the treble even a little further, and "sweeten" the sound. The best opportunity to sweeten tracks is while resolving, because at this stage tape noise has not yet begun to accumulate and the treble can still be boosted without tape noise coming up as well.

By diminishing the volume of selected frequencies, equalization can also be used to filter out unwanted noise. For instance, equalization will effectively filter out tape hiss, the inherent high frequency noise of recording tape; and is, therefore, done routinely when transferring location sound from cassette where tape noise is significant. When resolving to magnetic fullcoat, filtering is also done to the low frequencies in order to minimize the rumble and boominess caused by traffic and machinery, as well as wind and handling noise on the microphone. If left in, these low-frequency noises could force you to transfer at too low a level, diminishing the quality of sounds, such as speech, that are important. Finally, while transferring sync sound from the magnetic edge stripe of film to magnetic fullcoat, equalization can be used to filter the 60Hz (and 120Hz overtone) AC hum generated by the unshielded motors of Super 8 projectors.

Though the equalization pattern indicated here is a basic one for improving the clarity and intelligibility of many tracks, equalization should always be done by ear and not by formula. As a rule, as little equalization should be done while resolving as possible. The mix is a better point at which to make subtle adjustments in equalization, since at that stage the sound can be judged in the context of the picture it accompanies. Since sound, once removed, can never be properly replaced, heavy equalization prior to the mix only limits your flexibility in the mix.

One final consideration while resolving to magnetic fullcoat is that frequently scenes, and even shots within a scene, are miked differently — the result being a discrepancy between levels in successive shots. Typically, such fine level adjustments are made using a technique known as "track splitting" (see Track Splitting below). However, the number of level adjustments required during the mix can be reduced by carefully equalizing

the location sound during the transfer to magnetic fullcoat to achieve a uniform loudness from each take being copied. This will result in a less manic juggling of sound levels when mixing.

## EDITING WITH MAGNETIC FULLCOAT

Having resolved location sound to fullcoat, you have in your hands the basic materials for editing synchronous sound and images. All that is then required to begin editing is to line up, on the editing bench or table, the corresponding frame of sound on fullcoat with the picture it accompanies.

Syncing-up is accomplished by locking the picture and sound into the sync block where the clapper board closed. With a wax pencil, the picture is marked with a boxed X, and the corresponding frame of sound is marked with three bars, III, using an indelible ink sharpie. A grease pencil is not used for marking magnetic fullcoat because it will clog playback heads.

Tape splicers designed to cut picture work fine with magnetic fullcoat. The tape, however, should be applied to the base side only — a splice on the magnetic oxide surface would cause the sound to drop-out over the splice. For this reason we suggest you use the Wurker splicer and its four frame tabs. It enables you to apply tape only to the base side of the magnetic film.

If your splices are noisy — popping and clicking during loud sections of a track — your splicer is magnetized. To demagnetize your splicer use a bulk eraser or a hand degausser. To avoid noisy splices from the outset, make several test splices on blank magnetic film, and listen closely with the playback volume all the way up. If the splices are noisy, demagnetize your splicer before going on to splice your film. Repeat this test every so often as your splicer will become magnetized with regular use.

When it is necessary to splice leader into the sound track, film leader is not used because it is thicker than magnetic fullcoat and will jam in the Super8 Sound Recorder — besides film emulsion can flake and clog the sound heads.

## A & B ROLLING

If you desire an effect, such as a picture dissolve, but did not execute it in camera at the time of filming, you must



use a technique called A & B rolling when you have your film printed.

A & B Rolling consists of separating each successive shot onto alternate rolls — the portion of the other roll opposite a shot is filled with opaque black spacing. In printing, the original is passed through the printer one roll at a time, and the printing stock is thus exposed twice. The black spacing in the A roll leaves gaps of unexposed film which are then exposed when the B roll is passed through the printer on the second pass.

Special effects are accomplished simply by putting images opposite each other on the A & B rolls, so that they are exposed on the same section of print stock. For example, smooth dissolves can be produced during the printing by overlapping the tail of one shot over the head of another on separate rolls. The printer automatically fades out the first shot on the A roll and fades in the second shot on the B roll. Double exposures, dissolves, and super-imposed titles can all be accomplished in this fashion.

## TRACK LAYING

The single greatest advantage to double system editing is the extensive control over each element of sound it allows. Ambient sounds, music, voice-over narration, and sync dialogue can be freely juxtaposed with picture, as well as be overlapped and mixed for numerous sound effects. Mixing separate tracks together allows not only for effects such as dissolves and fades in the sound, but also the equalization and balance of tracks relative to one another for precise control over sound perspective. But in order to realize the full creative potential of double-system sound mixing, careful preparation and planning for the mix must be made while laying sound tracks.

To facilitate fine audio adjustments during the mix, tracks are layed as follows. Different types of sounds — dialogue, music or narration — are first segregated onto different tracks. This is done partly so that during the mix you can know what to expect from each track, but also so that the number of adjustments made during the mix is minimized. For example, if you lay tracks so that only one contains narration (which is usually recorded at a constant level and quality), you only have to set the level and equalization once for that track and then leave it alone.

So that dialogue that was miked

differently in different shots can be blended seamlessly together, the sync dialogue of the fine cut is then split between two tracks. It is not left on one track because frequently the sound for one shot is recorded significantly lower or higher than that of the previous shot. If both shots were left on the same track, it would be impossible to make the instantaneous level adjustment required as the cut flew by. If the shots are split onto separate tracks, and thus carried on separate channels, the level and equalizations for each can be set beforehand on separate controls. At the cut, when the sound switches from one channel to the other, the levels match and the shots blend seamlessly together. Where there is a discrepancy in background noise as well, it often helps to overlap the head and tail extensions of the shots (stored on the out-take role) to ease the transition by doing a subtle sound dissolve.

In general, track splitting is a little like A & B rolling for printing picture: on each roll, sections of mag film alternate with sections of leader that act as spacers. For so long as the sound continues at the same level and quality, whether of the main or background sound, it is retained on the same roll. But at points where there is a change, the track is split and the sound is switched to another roll. Besides enabling you to make fine level adjustments during the mix, track splitting also enables you to make fine adjustments in the frequency distribution and relative balance of shots that were miked differently, so that they will blend seamlessly together.

When filming on location, the discrepancy in frequency distribution and relative balance between shots can be great. Microphones of different directionality, for instance, vary greatly in their frequency response (how a microphone responds to various frequencies of sound) and balance (the proportion of the primary source to competing background noise) they will record. Some mikes emphasize the bass or low frequencies, while others emphasize the treble or high frequencies. To complicate matters further, the distance of a microphone from its source effects the balance as well as the frequency response — if a directional mike is too close, it will bring out an unnatural bass tone quality (known as the "proximity effect").

Though discrepancies in the relative balance and frequency distribution between long shots, mid shots, and close

ups in a scene are what create the illusion of a spatial dimension to the flat film image, they must be tightly controlled. The ear finds objectionable the direct comparison of shots with such discrepancies when they are presented one immediately after the other without a corresponding change in perspective. For this reason, recorded passages of the same voice within a scene have to be matched or else the discrepancy will be obtrusive. To be sure, the matching of tone and balance between shots within a scene can be a complex matter — making microphones and their matching an important component of sound mixing technique.

To correct for discrepant levels, so that they match seamlessly, a track is split and the sound processed through a graphic equalizer. By permitting the selective emphasis or de-emphasis of frequencies throughout the audio spectrum (see Equalization above), a graphic equalizer will enable you to match the frequency distribution and relative balance of shots that were miked differently. For instance, if the sound accompanying a particular shot of a scene is relatively boomy, it is split to a separate track. During the mix, the bass frequencies of that channel are rolled off, so that as the mix switches from the one channel to the next, the frequency distribution is matched and the shots blend seamlessly one into the next.

Where the discrepancy is one of a difference in the balance an equalizer can be used to either filter out obtrusive ambient noise where it is too loud on one track relative to the other, or to boost it where it is too soft relative to the other. An equalizer can also be used to lift or depress the mid-range to give the human voice more or less presence relative to the ambient noise. During the mix the relative balance of the shots can thus be matched by the selective emphasis or de-emphasis of frequencies as the mix switches from one channel to the next.

Besides enabling you to make fine adjustments in the level, frequency distribution, and balance of shots that were miked differently, tracks can be split to create natural changes in sound perspective and spatial dimension to a sound that does not otherwise have one. Such modeling of sound has the effect of giving depth to the flat screen image.

To give depth to the flat screen image, one should strive to model sound the way one strives to model figures with

light. When miking a scene, carefully position the microphone to blend direct and reflected sound in order to produce a track that reflects the space of the original scene — that is, record not only the informational “content” of an actor’s speech or sound effects but also its spatial presence. Try, in effect, to duplicate through sound the space seen on the screen.

This is accomplished primarily by having the microphone mimic the angle and distance of the camera, creating a sound perspective that matches the visual perspective of the image. However, it can also be accomplished by the modulation of sound as a result of a perceived change in location. For example, applause that begins as a character leaves the stage and continues, in muted form, after the camera has cut to back-stage, has obvious spatial implications. Sound that continues to be heard when its source is no longer present, reminds us of a locale beyond our view and thus gives depth to the flat screen image.

To create such effects with sounds that are not recorded on location, but rather dubbed from effects records or tapes, you will have to split them onto separate tracks. For instance, where the desired effect is a change in sound perspective to correspond to a change in the camera perspective, like in the example above, the stage sound is split onto two separate tracks. If the two channels are set at different levels, the volume of the applause will change as it switches from the one channel to the other. If the applause track is split on a sync block at the exact splice joining the two camera perspectives, the change in sound perspective will exactly match the change in picture perspective — a humanly impossible feat by manipulating a slider on a mixing board.

Where the desired effect is a spatial tone that a sound does not have, that tone can be created by isolating that sound on a separate track and processing it through a reverberation device during the mix. The exact reverberation can be determined during the pre-mix, noted on the cue sheet, and set before the final mix down, so that it is accomplished automatically during the mix. Such techniques as these will enable you to duplicate natural sound — giving your film’s soundtrack a heightened realism.

Such consistent duplication of natural sound can also create startling

effects when it is willfully ignored. Contrasted to natural sound, distorted sound makes us vaguely uncomfortable — usually without our knowing why. The effect can be very subtle and slightly dislocating. A sort of floating tension is created that can be used by the filmmaker in directing audience response.

During the mix, equalization can serve other functions as well as those described above. For instance, an equalizer will effectively filter out tape hiss — the inherent high frequency noise of recording tape. It can distort the normal quality of voices and sound effects to produce a wide range of special audio effects. For example, an equalizer can be used to distort the quality of a normal voice to simulate the sound of a voice over a telephone, loud speaker, or car radio.

### The Cue Sheet

As detailed above, the mixing of multiple sound tracks requires numerous fine adjustments in relative signal strength and equalization. As the number of variables in a mix grows, the cue sheet becomes even more important. In order to avoid mistakes we suggest you develop some form of notation to cue desired changes in level and equalization during the mix.

### Mixing

If you have been counting the number of channels required for many of these split track effects, you may already realize that more channels are needed than are typically available to the Super8 filmmaker. Unless you have access to an 8-track studio through a local media center, you probably only have three channels of a 4-track recorder available for the mix (the fourth channel being used for the sync reference, or control track).

When mixing with a four track, a pre-mix is typically done to consolidate and balance together music, voice over narration, and many of the sync sound effects onto a composite track. This composite effects track is then mixed with sync dialogue, splitting the dialogue track as desired.

Though this method of track assemblage requires one additional generation of re-recording sound effects, there will be no appreciable loss of sound quality as long as it is controlled by means of equalization and noise reduction over the

successive generations of re-recording.

## CONCLUSION

The Double System filmmaking techniques described here greatly extend your creative control over both picture and sound. They enable you to give a heightened realism to the film image by blending shots seamlessly one into another; and by enabling you to duplicate natural sound perspective, give an illusion of depth to the flat screen. They enable you to direct your audience’s attention, as well as control their responses, in subtle ways that will not always be conscious to them. In no other way can you move a narrative with such control. Double system filmmaking will enable you to render your vision on the screen like no other visual medium.

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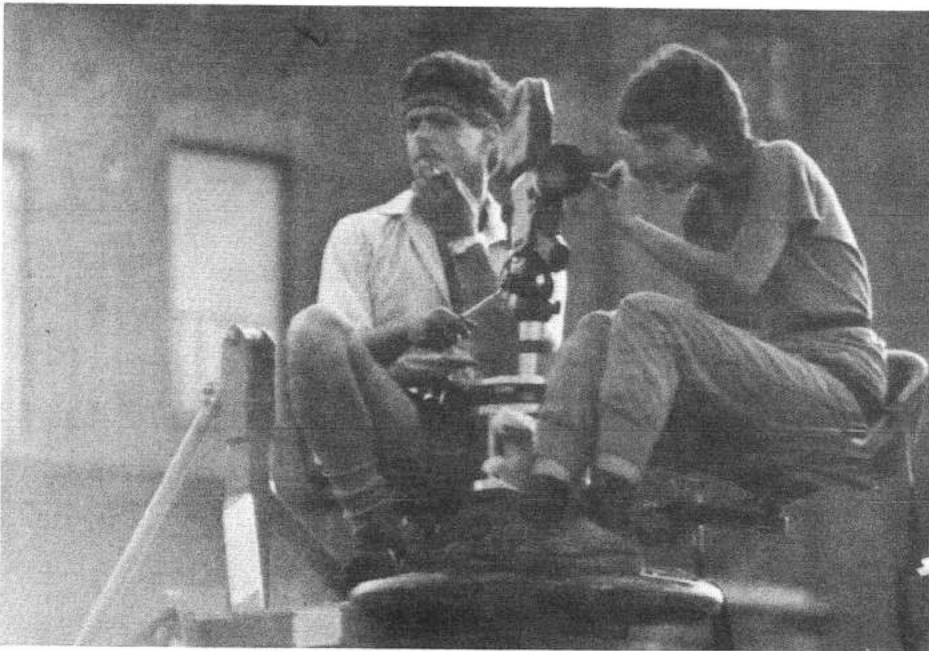
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# Super 8 as a Video Production Format



*Tulip crane shoot using Nizo 6080 on "Just the Two of Us"*

by Guy Holt

The implication of the video boom for Super 8 film production has been grossly misconstrued — instead of making Super 8 obsolete, video has opened up new opportunities for Super 8 as a television production format that can rival 16 mm and broadcast quality video tape.

Professionally transferred to one inch video tape, Super 8 offers the video producer that sought after "film" look, with the dynamic contrast range and associate color shifts that have become synonymous with high production value video. With electronic color correction and image enhancement — techniques used for professional transfers of 16 mm film to tape — the look of Super 8 on tape is almost indistinguishable from 16mm film (reported in the SMPTE Journal and in American Cinematography, Vol. 56, No. 11).

Image enhancement is a critical factor in film to tape transfer. Image enhancers analyze the television signal on a line-by-line and dot-by-dot basis to detect detail and increase its contrast — the net effect is a sharper picture. The camera in the telecine chain can be balanced as well for the proper red, green and blue combination and thereby compensate for various off-colors. Color may be added or subtracted from the image. If a color is there, though diminished, some color can be added until it is built up to the desired level. If, as with fluorescent illumination, there is too much of a color, it can be subtracted out.

There is of course a distinctive change in the quality of the video image whenever the original medium is film, rather than video tape. Characteristic differences between film and video in their dynamic contrast range, and as-

sociated color shifts, produce the familiar "film" look, as compared to the "live video camera" look. This look of film is the same whether the original film is 16mm or Super 8. "With a crisp Super 8 original, with such image enhancement as is generally used for 16mm film transfers, and with electronic color correction, it is extremely difficult to distinguish Super 8 from 16mm in off-the-monitor tests. . . ." (American Cinematography Vol 56, No. 11).

The end result being that a Super 8 Kodachrome 40 original can achieve 100 lines per mm resolution, a horizontal resolution in excess of 500 lines, and natural color rendition. By comparison, the  $\frac{3}{4}$ " U-matic videocassette recorder has a horizontal resolution of only 320 lines and artificial color rendition.

As any media producer knows the look of a format has as much to do with the prevailing picture and sound editing techniques as with image resolution and color rendition. Today's sophisticated double system Super 8, with its capabilities for mixing multiple sound tracks and straightforward physical editing (cutting) on an exact frame, is capable of every production and post-production technique of 16mm and 35mm sound cinematography.

Although the Super 8 double system editing and sound mixing equipment available today is by far the most flexible and least expensive way to edit Super 8 for video distribution, a video editor with access to sophisticated  $\frac{3}{4}$  or 1 inch video tape editing equipment may prefer to transfer the Super 8 original film and sound directly to tape for video editing. This practice is recommended by the Canadian Broadcasting corporation study group that endorsed Super 8 as acceptable for broadcast on Canadian television (SMPTE Journal, April 1974). However, film editors, who can't afford the high cost of professional tape editing facilities, or who simply find that the electronic artifice of video editing cramps their cinematographic style, may still prefer to cut Super 8 film despite its small size and then transfer to video.

High quality transfers of Super 8 to broadcast quality videotape have made today's sophisticated double system Super 8 the least expensive, and most versatile, video production format available for either broadcast telecasting over the airwaves, or for use on cable television.

# Widescreen\* and the NIZO 6056



by Galen Burke

## THE RIGHT STUFF

Often circumstances, being what they are, bring together the right stuff for a near perfect combination; like Laurel and Hardy, pretzels and beer, the Nizo 6056 and the Prominar Anamorphic-35 lens.

Not since 20th Century Fox bought the patent rights for the Cinemascope<sup>1</sup> lens thirty years ago has the combination of a Super 8 camera and a "widescreen" anamorphic<sup>2</sup> lens been so successful.

With the small front element of the Nizo 6056 (52mm) and the large rear object lens (63.5mm) of the Prominar anamorphic lens, vignetting (viewing of the front optics) does not occur until 15mm's in the Schneider 7-56mm zoom lens. This is equivalent to a 8.5mm focal length of a conventional image, but with no empty sky or grassy foreground.

Instead, the scene is proportionally: 3 ft. high by 7 ft. wide, when projected-A 2.35:1 aspect ratio - which is very similar to what we see through both our eyes.

The combination is very easy to use also. The lens mount screws into the microphone base at the top of the camera

(an additional 1/4" tap is still available for the microphone) and the anamorphic lens slips in and is held by two nylon set screws.

Focusing can be done in one of two ways - either set both lens for "infinity" for objects beyond about 12 ft. - or preset the distance on the anamorphic lens and focus via the view finder in the camera lens. Be aware of the locking flange on the front of the anamorphic lens that will prevent the lens setting from being accidentally moved.

From here on, just squeeze the trigger and for some breath-taking scenes have some movement at the bottom of the screen - like dollying the camera across the ground, or just above the rapids of a stream. Then there's that old favorite of widescreen - the roller coaster ride - and it will never look better!

It is just as natural to frame those scenic shots with a wide-screen anamorphic lens, since this added width gives perspective (lines that disappear into infinity) even when shooting in the middle of a desert.

There is another "natural" for widescreen and that is the use of "stereo sound" to compliment the action or to enhance the feeling of being there. For example, by simultaneously adjusting the sound levels of a stereo projector, even monaural sound can simulate the stereo effect of an aircraft flying from left to right across the wide screen.

And when it comes time to project those widescreen shots, the same lens mount attaches to the top of most projectors. A good white wall will suffice for a screen because there is virtually no light loss through the anamorphic lens. And what has always astounded those looking at the picture is that here is no more grain visible than in normal projection - just incredibly big, sharp, colorful movies!

When you're shooting in widescreen, you will not be shooting by yourself. There are at least five amateur "Widescreen Associations" world-wide and three of them - the American, the Australian, and the British - incorporate annual widescreen film competitions.

Of course, television is not too far behind, with research being done at Cornell University and at Shure Microphones using the same widescreen format as you're shooting.<sup>3</sup>

## Footnotes

\*"Widescreen": Any film format that projects wider than a 1.33:1 (3x4) aspect ratio. Ref: Ind. Prod., Vol. 1 #5, "Widescreen", Pg. 7.

1) "Cinemascope" is a trademark of 20th Century Fox for the anamorphic system they bought from Henry Chretien in 1953.

2) "Anamorphic" has come to mean the curved lens that "squeezes" the film image in width only.

3) Sony's front projection television (FPH670W) can project an image 60 x 160 inches (a 2.35:1 aspect ratio).





# Super 8 Film Festivals

In our last two issues we presented an extensive list of over 50 film festivals which accept Super 8 films for competition. While this list remains a good source for reference, it can be overwhelming to decide from such a large list which two or three festivals would be worth competing in. For this reason, we would like to identify for you what are considered to be the major national and international Super 8 film festivals. These festivals are either geared exclusively to Super 8 productions, or have a strong commitment to the format as evidenced by the equality given it in relation to other formats which are competing. As an added note, most film festivals who do not specify that they will accept a Super 8 film for competition, will take one that has been conformed to meet entry requirements, be it transferred to video or blown up to a larger film format. Check with the individual festival to see what they require. Further festival information can be obtained on a monthly basis from these two publications: *The Independent*, 625 Broadway, New York, NY 10012, or *Film and Video Makers Travel Sheet*, 4400 Forbes Ave., Pittsburgh, PA 15213.

## **Ann Arbor 8mm Film Festival**

227 South Ingalls, Box 7571  
Ann Arbor, MI 48107  
(313) 769-7787

**Held in early February (January deadline)**

The Ann Arbor 8mm Film Festival is the oldest and most well known of its kind in the United States, having just completed

its 16th year of competition. Sponsored by a non-profit film society at the University of Michigan, it is designed to encourage creative activity in the field of 8mm film production. The festival committee is committed to bringing in the best of Super 8 films from around the world, and a panel of guests from home and abroad to share their expertise about the medium. Clearly more than just a competition, the Ann Arbor 8mm Film Festival is a wonderful gathering place for all those interested in the Super 8 format. Prizes available sum in excess of \$2,500. All entries are viewed by a screening committee then screened publicly during the festival. An awards jury then views these films and determines prize distribution.

## **Atlanta Film and Video Festival**

Image Film & Video Center  
972 Peachtree St., Suite 213  
Atlanta, GA 30309  
(404) 874-4756

**Held in May (February deadline)**

The Atlanta festival is a multi-format competition, accepting entries in Super 8 and 16mm film, 1/2" Betamax and VHS, and 3/4" video. Filmmakers may submit work on video, but must provide prints for screening during the festival if their work is selected for exhibition. The festival usually selects a theme each year, in 1986 being "Ten Years of Southern Independents." Special programs featuring recent and past works by independent producers from Georgia and the south-

east region are planned. Approximately \$5,000 in cash and equipment prizes will be awarded.

## **Athens International Film Festival**

Athens Center for Film & Video  
P. O. Box 388  
Athens, OH 45710  
(614) 594-6888

**Held in April (Feb./March deadline)**

Now planning its 13th year of competition, this is a major U.S. film festival screening many feature length films and premiering many new titles for the commercial market. They do maintain a Super 8 competition, open to any filmmaker wishing to enter, without restriction to length or theme. Total prizes and equipment average about \$2,000.

## **San Francisco Art Institute Film Festival**

800 Chestnut St.  
San Francisco, CA 94122  
(415) 771-7020

**Held in March (February deadline)**

This 8 year old Super 8/16mm film festival is the largest student run, premier showcase in the United States. The festival attempts to give exposure to the best of recently produced avant-garde films from around the world. The festival welcomes all styles of film expression and encourages new and emerging filmmakers to submit their work. All films are pre-screened for festival judges. Winning entries receive cash prizes and gift certificates totaling more than \$2,000.

## **Rochester International Amateur Film Festival**

"Movies On A Shoestring"  
P.O. Box 3360, Rochester, NY 14614

**Held in May (March deadline)**

Founded in 1959 by a group of filmmakers in Rochester, New York, this 27 year old festival exists on the principle that it is important to gratify amateur cinematographers in search of appreciative audiences. It is also important to give the public an opportunity to see outstanding non-theatrical films. The festival accepts Super 8 and 16mm entries, awarding prizes in each category. Winning entries will go on tour to area schools after the festival's completion.



### **New England Film Festival**

Co-sponsored by:  
Division of Continuing Education  
University of Massachusetts  
Amherst, MA 01003  
(413) 545-2360  
&  
Boston Film/Video Foundation  
1126 Boylston St.  
Boston, MA 02215  
(617) 536-1540

#### **Held in mid May (March deadline)**

For years a regional 16mm festival, the New England Film Festival has increasingly recognized and reached out to Super 8 filmmakers. This last year saw the institution of a separate Super 8 category with over six hundred dollars in cash awards, film material, and service prizes. The New England Film Festival is open to documentary, narrative, animated, and experimental films independently produced by filmmakers who are residents of the six New England states. A home town festival that recognizes the important contributions that Super 8 filmmakers can make, we encourage your participation in the New England Film Festival.

### **Kinetic Image Film Festival**

Box 11465, St. Petersburg, FL 33733  
(813) 577-2086

#### **Held in October (September deadline)**

The Kinetic Image Film Group is a 12 year old non-profit organization whose main purpose is to promote and encourage independent filmmaking in Super 8, 16mm and 1/2" or 3/4" video. In the past two years the event has been telecast live by Vision Cable Company to the local community. In addition, HBO representatives have been present looking for films for national distribution. Many films have been chosen in past years, with contracts being negotiated directly between the filmmaker and the distributor. Kinetic Image receives no funds or commission. Cash prizes are awarded to winning entries.

### **CineMagic Magazine's Short Film Search**

475 Park Ave South  
New York, NY 10019  
(212) 689-2830

#### **Held in November (October deadline)**

For 8 years, CineMagic Magazine in conjunction with the School for Visual Arts in New York City has held an annual

competition for films whose subject deals with science fiction, fantasy, horror or animation. A very well done one night affair, usually held at a prominent New York City establishment, competition is in 3 categories: Super 8, 16mm and video. Cash prizes and equipment are awarded in each area. Prominent key note speakers involved with commercial film production and a nice variety of refreshments give the evening a special touch.

### **Ten Best of the West**

*c/o George Cushman*  
P. O. Box 4034, Long Beach, CA 90804

#### **Held in October (September deadline)**

The contest is open to any amateur filmmaker whose legal home address is in Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, or in British Columbia, Alberta, or Saskatchewan, Canada. Entries are accepted in Super 8, 16mm or any video format.

### **Central Florida Film & Video Festival**

*c/o Fred Meyer*  
6722 Edgewater Drive  
Orlando, FL 32810  
(315) 299-3848

#### **Held in April (March deadline)**

1986 will mark the 4th Annual Central Florida Film & Video Festival, held by the Association of Cinematic Arts in Orlando, Florida. The festival is open to amateur filmmakers and videographers of all ages in the following categories: Drama, Comedy, Documentary, Science Fiction, Horror and Animation. Entries must be submitted in Super 8, or 16mm film, 1/2" VHS or Beta or 8mm video. The winning entries will appear on public access cable.

### **International Competitions**

Many countries hold film festivals for Super 8 exclusively, or in conjunction with other formats. These festivals take Super 8 quite seriously as the use of 16mm and video is not common in the non-commercial ranks.

### **3rd International Super 8 Film Festival**

*Leicester Independent Film & Video Association*  
11, Newarke Street  
Leicester. LE1 5SS, England (0533) 55911

### **Held May 24th-June 1st, 1986 (April 26 deadline)**

The festival will be held at the Phoenix Arts Centre in Leicester, England, where a large screen and dolby sound equipment offer optimum sound and image quality. A smaller, less formal venue is available if preferred and will also accommodate Super 8 transferred to video and follow up discussions. Discussion groups during the festival will emphasize the problems of exhibition and distribution of Super 8 films, with representatives from various independent film organizations. Super 8 touring programs, regional film theatres and Super 8 on T.V. will all be discussed. An important international forum for Super 8 users.

### **Quebec International Super 8mm Film Festival**

*L'Association Pour Le Jeune Cinema*  
4545 Ave Pierre du Coubertin  
C.P. 1000 Succm  
Montreal H1Z 3R2  
(514) 374-4700

#### **Held in February (January deadline)**

Now in its 8th year, the Quebec International Super 8 Film Festival is one of the most important international cinematographic events for the Super 8 format. A major goal of the festival is to promote the production and distribution of Super 8 films in Quebec and around the world during the year. Winning entries will tour throughout the province after the competition. This festival is committed to inviting interesting international guests to share their knowledge and expertise about Super 8 with festival attendants.

### **Other Super 8 International Competitions:**

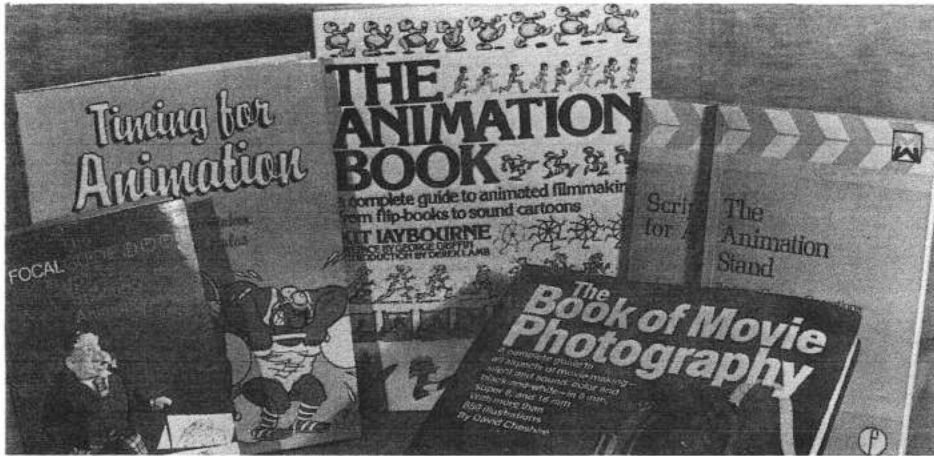
**Bruxelles** — Held in November. Write Robert Malengreau, 12 rue P.E. Janson, 1050 Bruxelles, Belgique.

**Cannes** — Held in May. Write Richard Clark, 9155 St. Hubert, Montreal, Canada H2M 1YF.

**Caracas** — Held in August. Write Carlos Castillo, Calle Payo Real qta Linda, Prados Del Este, Caracas 1080, Venezuela.

**Sao Paulo** — Held in August. Write Abrao Berman, Rua Estados Unidos 2240, Sao Paulo, 1427 Brazil.

# The Super8 Sound Booklist



## THE BOOK OF MOVIE PHOTOGRAPHY

A complete encyclopedia of filmmaking. The Book of Movie Photography covers all aspects of filmmaking: sound and silent, color and black & white, in 8mm, Super 8mm, and 16mm. Over 850 color illustrations and actual film excerpts, cleverly laid out on the page, clearly illustrate filmmaking techniques - David Cheshire. (hardcover) \$22.50

## FILMMAKER'S GUIDE TO SUPER 8

Leading Super 8 filmmakers from around the world tell you how to shoot and edit your own films. There are in depth sections on sound filming, selecting equipment, low-cost special effects, animation, scriptwriting, filming special events, lab services and starting a money-making film business - Super-8 Filmmaker Magazine (hardcover) \$8.95

## INDEPENDENT FILMMAKING

Lenny Lipton's classic on not only the techniques, but also the philosophy and aesthetics of independent filmmaking - Lenny Lipton. (paperback) \$7.95

## THE FILMMAKER'S HANDBOOK

A standard course text on 16mm filmmaking, it is suggested reading for its discussion of both 16mm and Super 8 double system filmmaking techniques - Pincus & Ascher. (paperback) \$12.95

## SUPER 8 IN THE VIDEO AGE

A single system production manual for the beginning to advanced Super 8 filmmaker - Brodsky & Treadway. (paperback) \$14.95

## THE TECHNIQUE OF THE SOUND STUDIO

The standard text on the techniques of recording, mixing, and editing sound for film and television - Nisbett. (paperback) \$19.95

## THE TECHNIQUE OF FILM EDITING

A standard text on film editing, this book examines techniques of picture and sound editing in detail - Reiz & Miller. (paperback) \$16.95

## HOW TO SHOOT A MOVIE & VIDEO STORY

Here, in one small guide, are all the techniques of pictorial continuity: the simple sequence and its variations, the establishing shot, overlap and matching action, cut-ins and cut-aways, angles, panning, moving shots, build-up, transitions in time and space, directional continuity, story methods, editing film and videotape, and more practical information. (paperback) \$9.95

## MOTION PICTURE CAMERA TECHNIQUES

The author shares his thirty-five years of cinematic experience as he offers advice on choice of film, correct exposure,

lighting techniques, shooting animation, visual effects, stunts, and filming in less than perfect weather - Samuelsen. (paperback) \$13.95

## TECHNIQUE OF LIGHTING FOR T.V. AND MOTION PICTURES

This volume offers a study of the techniques of creative lighting, from its basic principles to its most sophisticated variations - Millerson (paperback) \$20.95

## FILM SCRIPTWRITING

Film Scriptwriting tells the novice scriptwriter how to use the tools and master the procedures that will ultimately lead to a successful film script — Swain. (paperback) \$9.95

## THE INDEPENDENT FILM & VIDEOMAKER'S GUIDE

This guide provides a nuts-and-bolts approach to the production and distribution of an independent film. An award-winning independent filmmaker and lecturer at the American Film Institute, Michael Wiese tells you how to find investors, prepare a prospectus, research the market, and produce and distribute the film — Weise. (paperback) \$14.95

## THE TECHNIQUE OF SPECIAL EFFECTS CINEMATOGRAPHY

Almost every special effect now in use is described and illustrated in this text. The author divides special effects into three categories — in-the-camera methods, laboratory processes, and combination techniques. Within each category, he describes the procedures and potentials of every process, including glass shots, optical printing and rear projection — Fielding. (paperback) \$19.95

## THE ANIMATION BOOK

The most comprehensive guide to the making of animated films. The Animation Book is for anyone who has ever wanted to make a cartoon or simply learn how it is done. The book's premise is that sophisticated drawing skills are not necessary and that with the proliferation of inexpensive home movie equipment, even the full-color sound cartoon is not beyond the budget of the resourceful amateur — Laybourne. (paperback) \$10.95

## SUPER 8 FILMMAKER MAGAZINE BACK ISSUES

45 Issues of Super 8 Filmmaker (incl. shipping) \$49.95  
Individual Issues available — please write for directory \$3.00



# The Price List

**SUPER8 SOUND**  
 95 HARVEY STREET  
 CAMBRIDGE, MA 02140  
 (617) 876-5876

## THE INDEPENDENT PRODUCER'S GUIDE TO SUPER 8

This comprehensive guide provides all the information you need, such as equipment specs, film festivals, lab services and periodic articles on Super 8 film production. A must for anyone interested in Super 8 at any level. Update annually. \$5.00

## Cameras

Most of our effort at Super8 Sound is devoted to understanding the properties of Super 8 as it relates to effective media production. Our years of experience in dealing with film producers and camera manufacturers has taught us a lot about what applies best in the field, rather than what looks good in the showroom. And while any camera can be used creatively, certain cameras offer you more creative options.

Our price list reflects that equipment, currently available on the market, which is the best value both in terms of practical application and creative options.

**BEAULIEU 7008S** (Sound) with ANGÉNIEUX f/1.4, 6-90mm color coated lens, Boom Microphone, Nicad Charger and Batteries (72mm filter size) (10) 2950.00

**BEAULIEU 7008 PRO** (Silent) with ANGÉNIEUX f/1.4, 6-90mm color coated lens, Crystal Control, Nicad Charger and Batteries (72mm filter size) (10) 2950.00

- 7008S Sound Camera Body Only (6) 1495.00
- 7008 PRO Silent Camera Body without Crystal Control (6) 1395.00
- ANGÉNIEUX 1.4, 6-90mm color coated lens (72mm filter size) (4) 1395.00
- Crystal Control (Pro Only) 345.00
- Metal Camera Case (18x13x6) (7) 80.00
- Telescopic Boom Mike 150.00
- Earphone 25.00
- Sennheiser
- High Impedance Headphones (2) 85.00
- DC/DC 12 V Charger 65.00
- Nicad Battery Charger (multi-volt) 65.00
- Lens Adapters to C Mount (State) 150.00

Super8 Sound stocks and sells new and used accessories for Beaulieu 1008, 2008, 3008, 4008, 5008, and 6008 cameras.

## BEAULIEU 5008 (please inquire)

- Boom Mike 150.00
- Input Mix Box 65.00
- Earphone 25.00
- Battery Extension Set 120.00
- DC/DC Charger 12 V 65.00
- Standard Charger 65.00
- Battery (500mA) 150.00
- Cable Release (straight) 25.00
- Rewind Knob 50.00
- Single Frame Device (requires cable release) 65.00
- Formed Eye Cup 10.00

## BEAULIEU 4008 (please inquire)

- Battery Extension Set 120.00
- DC/DC Charger 65.00
- Standard Charger (multi-volt) 65.00
- Battery Pack (250mA) 75.00

## NIZO 6080 with Boom Mike, Universal Charger, Nicad Battery Pack, Formed Eye cup, Zoom Extension, Lens Shade, Ear Plug Monitor, and Manual. (67mm filter size) (9) 1295.00

- Matte Box w/effects mattes (3) 175.00
- Canon Ultra Wide (67mm) 125.00
- Canon Telephoto Extender (2) 150.00
- Sennheiser High Impedance Headphones (2) 85.00
- Soft Black Shoulder Case 75.00
- Custom Fitted Metal Case (9) 175.00
- Metal Case (18x13x6) (7) 80.00
- Nicad Battery Pack (Accumulator) 39.00
- Battery Charger 65.00
- 25' Boom Mike Extension Cable 25.00
- 25' XLR to DIN Mike Cable 25.00
- Marine Underwater Housing (4) 175.00
- Pull Focus Extender 20.00
- Mike Adapter Cable (any kind — please specify) 15.00
- Line Match Cable (10') 35.00
- Operation Manual 10.00

## NIZO 6056 with Boom Mike, Universal Charger, Nicad Battery Pack, Formed Eyecup, Lens Shade, Earplug Monitor, and Manual. (67mm filter size) (9) 1195.00

- Matte Box w/effects mattes (3) 175.00

- Schneider Ultra Wide (52mm) 125.00
- PM35 Anamorphic Lens for Wide Screen filming and projection (2) 500.00
- Sennheiser High Impedance Headphones (2) 85.00
- Soft Black Shoulder Case 75.00
- Custom Fitted Metal Case (9) 175.00
- Metal Case (18x13x6) (7) 80.00
- Nicad Battery Pack (Accumulator) 39.00
- Battery Charger 65.00
- 25' Boom Mike Extension Cable 25.00
- 25' XLR to DIN Mike Cable 25.00
- Marine Underwater Housing (4) 175.00
- Pull Focus Extender 20.00
- Mike Adapter Cable (any kind — please specify) 15.00
- Line Match Cable (10') 35.00
- Operation Manual 10.00

## NIZO INTEGRAL 10 with Boom Mike, Ear Plug Monitor, and Manual. (filter size 67mm) (6) 595.00

- Canon Ultra Wide 125.00
- Canon Telephoto Extender (2) 150.00
- Metal Case (18x13x6) (7) 80.00
- Soft Black Shoulder Case 25.00
- Mike Extension Set 35.00
- Wind Screen 10.00
- Formed Eye Cup 10.00

## BAUER C500 XLM (Silent) with soft shoulder case and slide holder. (49mm filter size) (5) 275.00

- Schneider Ultra Wide 125.00

## CHINON SOUND CAMERAS

- Chinon 60RXL (52mm filter size) (8) 350.00
- Chinon 30RXL (46mm filter size) (6) 330.00
- Chinon 20PXL (43mm filter size) (6) 300.00

- \*Boom Mike (2) 25.00
- \*Ear Plug 5.00
- Boom Mike Stand 10.00
- 9v External Batt. Pack (C) (2) 35.00
- 9v External Batt. Pack (AA) (2) 20.00

\*Included with camera purchase

## CHINON SILENT CAMERAS

- Chinon 133PXL "Single Frame" (46mm filter size) (5) 185.00
- Chinon 132PXL "Single Frame" (43mm filter size) (5) 140.00
- Soft Case for Silent Chinons 10.00

## ELMO SOUND CAMERAS

- Traveler w/Boom mike (49mm filter size) (5) 150.00

## USED CAMERAS, DEMOS, CLOSE OUTS INQ. CAMERA MANUALS (We will do our best to supply a manual for any Super 8 camera) 10.00

## Universal Camera Accessories

- Matte Box w/effects mattes (4) 175.00
- Remote Intervalometer, from 2 f.p.s. to 1 f.p.m. (2) 95.00
- Backwinder 49.95
- Pull Focus Extension 20.00
- Remote Control 2' 4.95
- Remote Control 26' 8.95
- Metal Camera Case (18x13x6) (8) 80.00
- Metal Camera Case (22x16x81) (12) 100.00
- Ear Plugs 5.00



Slate	(2)	29.00
AA Batteries (6 to a pack)		4.00
Gaffer's Tape	(3)	13.95
Lens Tissue		.50

#### STUDIO LIGHTS

Please Inquire

#### SUPER 8 CAMERA FILTERS, CAPS & HOODS

Super8 Sound highly recommends the use of a Sky 1-A filter for protection of your camera lens, a Polarizing filter for light control, and Close Up Diopters for expanded close-up cinematography.

Sky 1-A:		
43mm		11.00
46mm		11.00
49mm		11.00
52mm		11.00
58mm		11.00
62mm		15.00
67mm		20.00
72mm		30.00
SR Polarizer:		
43mm		20.00
46mm		20.00
49mm		20.00
52mm		20.00
58mm		20.00
62mm		24.00
67mm		30.00
72mm		40.00
Close Up Set (+1, +2, +4,)		
43mm		35.00
46mm		35.00
49mm		35.00
52mm		35.00
58mm		35.00
62mm		45.00
67mm		60.00
Lens Caps (any thread under 72mm)		5.00
Lens Hoods		7.00

\*Other filters available

#### MARINE HOUSINGS

Ewa Marine Housings are extremely useful for protecting Super 8 cameras while filming under adverse conditions such as rain, snow, salt water, sand and mud. These housings are tested for underwater depths of up to 30' as well.

Custom housings are available for small cameras without a grip, small cameras with a grip, medium sized cameras, large cameras, and cameras with 200' cartridges for uninterrupted filming, with ultra-wide lens for wide angle filming.

Housings for Small Cameras	(3)	95.00
Housings for Large Cameras	(4)	175.00

#### BOGEN CAMERA TRIPODS\*

Mini Fluid Head	(4)	109.95
Micro Fluid Head	(3)	69.95
Ewa Electric Pan Head	(4)	95.00
3010 Tripod Legs	(10)	84.95
3020 Tripod Legs	(10)	104.95
3040 Tripod Legs	(12)	144.95

\*A complete tripod consists of a head and legs

Ball Leveler	(4)	39.95
Dolly for 3010/3020 Legs	(13)	84.95
Dolly for 3040 Legs	(15)	99.95
Carrying Strap		9.50

#### FILM STOCKS

Super8 Sound stocks all the types of film available in the U.S. for Super 8 production. Our film prices are competitive with even the most discount of discount film supply houses for two reasons: because we can buy in volume from Kodak, but primarily to give you, the Super 8 producer, a competitive advantage over other formats. All film is fresh from Kodak in Rochester, N.Y.

#### COLOR STOCKS

K-40 KODACHROME ASA 40 TYPE A		
50' silent		7.00
50' sound		9.00
200' sound		30.00
100' sound double super 8		30.00
EK160 EKTACHROME ASA 160 TYPE A		
50' silent		8.00
50' sound		11.00
EK160G EKTACHROME ASA 160 TYPE G		
Balanced for indoor/outdoor, no filter		
50' silent		8.00
SM7244 EKTACHROME ASA 160 TYPE A		
Local Processing Available (can be pushed).		
50' silent		8.00
50' sound		11.00

#### BLACK & WHITE

PLUS X ASA 40		
50' silent		7.00
100' double super 8		25.00
TRIX ASA 160		
50' silent		7.00
4 X ASA 400		
50' silent		7.00
100' double super 8		25.00
PK59 Kodak Pre-paid Processing Mailers		5.00

#### Location Recorders

A non-sync recorder, used with a high quality uni-directional condenser microphone, will greatly improve the fidelity of your sound and expand the options you have for your film's sound track.

<b>UHER 4200 REPORT MONITOR</b> (1/2 Track, Stereo, 1/4" Reel-to-Reel)	(10)	1349.00
<b>UHER 4000 REPORT MONITOR</b> (1/2 Track, Mono, 1/4" Reel-to-Reel)	(10)	1259.00
AC Power Supply/Battery Charger	(2)	125.00
Nicad Battery	(2)	120.00
Leather Carrying Case	(2)	120.00
<b>UHER CR 160AV</b> (Stereo Cassette with Dolby B & C, and sync track)	(8)	795.00
Power Supply/Charger	(2)	100.00
Nickel-Cadmium Battery	(2)	140.00
Deluxe Carrying Case	(2)	160.00
<b>SONY WALKMAN PRO</b> (WMD6-C Stereo Cassette with Dolby C)	(6)	350.00
<b>FOSTEX X-15</b> (4-Track Cassette with Dolby B)	(10)	495.00
Fostex AC Power Pack	(5)	40.00
<b>FOSTEX TEST TONE GENERATOR</b>		45.00

#### Microphones

##### AUDIO-TECHNICA

AT835 Shotgun w/cable and windscreen	(2)	220.00
AT813 Cardoid electret condenser w/cable & windscreen	(2)	145.00
AT805S Tie Clip Mini w/cable & windscreen	(2)	69.00
AT803S Tie clip sub mini w/cable & windscreen	(2)	120.00

##### SENNHEISER MICROPHONES

K3U Power Module	(2)	162.00
ME 20 OMNI Mic Head	(1)	87.00
ME 40 CARDOID MIC Head	(1)	123.00
ME 80 MINI SHOTGUN Head	(2)	190.00
ME 88 SHOTGUN Head	(2)	255.00
MKE 103 Tie Clip Mic Head	(1)	163.00
Shock mount		35.00
Fish Poll boom	(5)	69.95
Windscreen for ME 40/20		15.00
Windscreen for ME 80		30.00
25' Mike Cable (specify wiring)		25.00
Mike Adaptor Cables		15.00

#### Single System Viewers

Single system viewers are designed for personal viewing and sound playback, with quick access to film and sound for editing.

**BAUER F20** Silent, manual editor, with multi-faceted prism for flickerless image. Large bright screen. (10) 175.00

**HAHNEL MOTOMATIC:** Bidirectionally Motorized with Variable Speed Control. Multi-faceted prism for flickerless image. (10) 175.00

**HAHNEL SUPERMATIC:** Manual with multi-faceted prism for flickerless image. (10) 99.00

Sound Monitor	(2)	75.00
Film Counter		28.00
Film Cleaner		9.95

#### Special Tools

Copy Cat Rear Projection Screen (3) 59.95

**OPTICAL PRINTERS:** a complete package will cost approximately \$4000.00. For information send \$2.00 for the J & K optical printer information book.

#### Splicing Equipment

Creative editing is probably the most important aspect of filmmaking. But to freely indulge your creative instinct, you must first feel confident about the quality of your splices. We suggest the Wurker Stereo Splicer. It is the finest Super 8 splicer available; and, for other than economic reasons, we cannot recommend another.

<b>WURKER SPLICER</b>	(2)	59.95
2 Frame Stereo Tabs		4.00
4 Frame Stereo Tabs		4.50
Roller		12.00
Regular 8 Splicer	(2)	64.95
Regular 8 2 Frame Tabs		6.50
Replacement Blades		3.75
Sound Eraser		15.00
Liquid Sound Stripe		9.50

#### GUILLOTINE SPLICERS

CIRO (plastic) (2) 39.95

CIRO (metal)	(2)	59.00
Guillotine roll Tape		2.00
Fuji perforated roll Tape		2.00
Fuji replacement Blades		1.00

#### CEMENT SPlicERS

HAHNEL Motorized Cement Splicer	(2)	95.00
CRAIG Cement 1 oz		3.00
BOLEX Replacement Blades		15.00

#### OTHER SPlicING SUPPLIES

Minette Stereo Splice Tape		5.00
Minette Mono Splice Tape		3.00
1/4 x 60 yd White Paper Tape		2.00
Grease Pencils		1.00
Sharpies		1.00
Editing Gloves — cotton		1.00
Super 8 White Leader 50'		3.00
Super 8 Black Leader 50'		3.00
Super 8 Black Opaque Leader w/Sound		
Stripe for A & B Rolls	(50 ft)	10.00
	(400 ft)	65.00

### Film Cleaning

<b>ECCO 306 Film Cleaning system w/VSF 299</b>		
Includes 6 flannel rolls and 1 quart VSF 299		
	(10)	150.00
Universal 8 Rewinds, for use w/Ecco 306 film cleaning system.	(7)	95.00
VSF299 1 Quart (Sound w/lub)	(4)	9.50
VSF299 1 Pint (Sound w/lub)	(3)	5.00
Flannel Rolls		2.00
Dust-Off, compressed air cleaner		
Complete package	(2)	21.95
Refill		4.00

### Reels and Cans

#### BONUM REELS

For both film editing and storage, Bonum reels and cases are the best available. The reels are self threading and will never damage film ends because they grip the film from the side. The cases feature a climate control capsule so that your film will never become brittle, and stack together for attractive and functional storage.

200'	(1)	3.00
400'	(1)	4.00
600'	(2)	6.50
800'	(3)	11.50
Climate capsules 10		5.00

#### OTHER REELS

1200' ELMO Metal Reels	(3)	25.00
400' Plastic Reels		1.50
Super 8 to Regular 8 Reel Hub Adapters		1.00

### Lamps and Bulbs

#### PROJECTORS

EFP Xenophot 12v 100W		25.00
EFR Xenophot 15v 150W		25.00
ESC 15v 200W for GS1200		25.00

#### VIEWERS

Standard Bulb 6v 10W		2.00
Other Bulbs		INQ

### Projectors

In Super 8 production, the projector is used for more than merely screening film. In single system production, it plays an integral role in the creation of the soundtrack (a role assumed by multiple tracks of fullcoat in double system production). With Sound-on-Sound recording, or dual track recording

features, the projector can mix voice-over narration, or music with original sync sound. A stereo projector, used in line with a tape recorder, four channel tape recorder, mixer or equalizer, becomes the nucleus of a fairly sophisticated mini-sound studio capable of multi-track mixdowns and signal processing.

For optimum results, make sure to buy a projector powerful enough to meet your showing requirements and use external speakers positioned so that the sound emanates from the screen.

#### BEAULIEU PROJECTORS

708EL PROJECTOR	(45)	2500.00
708EL XENON ARC PROJECTOR — high intensity lamp for theatre projection	(60)	5500.00
Replacement Xenon Lamp		400.00
Custom Metal Case	(15)	250.00

#### BAUER PROJECTORS

T610 MICROCOMPUTER (Stereo)	(45)	1695.00
T430 SERVO (Stereo)	(25)	695.00

#### ELMO PROJECTORS

A lens is not included in the price of the Elmo projectors below. This is not done to confuse you or to make our prices seem low, but, rather, to maximize the flexibility of each machine. For optimum results, match the projector and lens most suitable to your specific application, be it projecting in a large theatre or in the privacy of your own living room.

ELMO GS1200 (stereo)	(45)	945.00
ELMO ST108E (2 track)	(25)	275.00
TRAVELER (1 track)	(20)	200.00
ELMO K110 (silent)	(20)	175.00

To choose the best possible lens for you, ask yourself the following questions. Do you need the brightest image possible (f 1.0)? Do you want the largest image possible (12.5mm)? Do you want, for theatre projection, the smallest image possible at a given distance from the projector to the screen (50mm)? If you have any questions, our experienced sales people will be happy to help you choose the combination of projector and lens you need.

f1.4 15-25mm		50.00
f1.3 15-25mm		75.00
f1.2 25-50mm		250.00
f1.1 12.5-25mm		150.00
f1.0 12.5-30mm		250.00

150 Snap on Viewer with bracket	(3)	75.00
4 Channel Line Mixer	(6)	98.50
Extension Speaker	(11)	69.95
Remote Control for GS1200	(6)	42.00
25' Speaker Connector Cable		25.00
Din Connector (2 pin)		5.00
Power Cords (specify projector)		25.00
GS1200 Sync Cord between GS1200 and any camera with PC for optical printing and special effects.		45.00

#### CHINON PROJECTORS

330 MV (1 track)	(20)	250.00
4000 GL (silent)	(20)	200.00
5000 GL (silent)	(20)	150.00
3000 GL (silent)	(20)	150.00

#### TELECINE

Telecine projectors are Regular and Super 8 projectors that are modified to meet the specific requirements of film to tape transfer. Accordingly, different modifications are required to transfer film

shot at 18 f.p.s. or 24 f.p.s. There is, yet, no one projector that can do it all. Prices include lens.

EUMIG 24TC (SUPER 8 24 fps)	(20)	695.00
EUMIG 18TC (SUP/REG 20 fps)	(20)	595.00
ELMO GS1200 (SUPER 8 24 fps)	(45)	1495.00
ELMO GS1200 (SUPER 8 20 fps)	(45)	1495.00
ELMO Telecine Uniplixer	(8)	150.00
BUHL BIPLEXER	(30)	650.00

AUTHORIZED FILM-TO-VIDEO DEALERS are eligible for reduced bulk rates on film-to-video transfer supplies and reels. Please write for bulk rates and terms.

### Double System Super 8

Double system is the most flexible means of producing a motion picture. Most 16mm and all 35mm films are made in double system because of the creative freedom it allows. Available in Super 8, double system will give you the same versatility and control over the filmmaking process in Super 8 as in the larger formats, so that you can now develop Super 8 as a medium to its fullest potential.

### Super8 Sound Recorders

The Super8 Sound Recorders I, II and Mag IV are multi-purpose magnetic fullcoat recorders which can be used in five different ways. As "location" recorders, they will record sync sound, directly onto easily edited magnetic fullcoat, with cameras with a P.C. flash contact, with no camera modifications necessary. They have an internal crystal oscillator for use with crystal controlled cameras. As laboratory resolvers, they will transfer sync sound recordings made with other sync systems, onto Super 8 fullcoat. And as transfer recorders, they will transfer sync-sound recordings onto, or from, magnetically striped film. In addition, the Super8 Sound Recorders can serve as editing bench amplifiers, and also as sound dubbers.

**MAG IV PRO PACKAGE:** Includes our most sophisticated Super8 Sound Recorder, the Mag IV, with crystal, pilot-tone and 1/F sync capabilities; AC power pack (supplies AC power to the Mag IV, charges nicad batteries, and serves as the source of the AC line sync signal); and the PhotoStart remote trigger for sync transfers with the Mag IV. (14) 1995.00

SUPER8 SOUND RECORDER I (Used)	INQ
SUPER8 SOUND RECORDER II (Used)	INQ
Nicad battery pack for the MAG IV	(2) 120.00
Leather carrying case for the Mag IV	(2) 120.00
Recorder I PhotoStart	(2) 95.00
Reel Extender (Rental Only)	

#### MAGNETIC FULLCOAT

1000' of 3M 341 stock	(2)	50.00
340' of 3M 341 stock on a Bonum 200' reel (18 minutes at 24 f.p.s.)	(1)	20.00
1200' of 3M 341 split 16 stock	(2)	50.00
850' Mastering stock on 200' Bonum reel	(1)	65.00

### Crystal Sync Cassette Recorder

Super8 Sound offers a crystal sync location cassette recorder for use with crystal controlled cameras. Sound recorded onto a cassette with this recorder must be resolved by a Super8 Sound Recorder or AC Resolver to establish sync with picture.

**LXR-6** (Sony WMD6C) Modified for crystal (7) 595.00  
**CONVERSION** of a Sony WMD6C or TCD5M to crystal (7) 295.00  
**CRYSTAL SYNC GENERATOR** for any two channel recorder with separate record level controls for each channel (same as the one installed in the LXR6 recorder). (2) 295.00  
**PULSE CONVERTER** for converting 1/f signals to 60 Hz pilot-tone. (2) 175.00

## Double System Cameras

Any camera equipped with a P.C. flash contact can be used for double system production. The only requirement is a cable between the camera and the Super8 Sound Recorder. For some cameras Super8 Sound manufactures crystal camera controls. These crystal controls permit cableless sync sound filming with any recorder equipped with a crystal control the Super8 Sound Recorders and the LXR6 cassette recorder.

Super8 Sound has engineered crystal camera controls for the Nizo 6080, 6056, and all models of Nizo silent cameras (this includes the 481 Macro, 561 Macro, 801 Macro, and 800P, as well as older models in these series). Super8 Sound as yet has not developed a crystal control for the Nizo Integral series (Integral 5,7,10) cameras.

Super8 Sound offers two Beaulieu crystal camera controls - one for the silent cameras and another for the single-system sound models. Super8 Sound has not yet developed a crystal control for the Beaulieu S Series cameras (6008S, 7008S). Beaulieu cameras do not need modification to work with the crystal controls. However, an Erlson 1/F switch is required.

The Super8 Sound Bauer crystal controls will control the speed of the S715XL and S709XL microcomputer cameras. Cameras to be crystal controlled must be sent to Super8 Sound for necessary modifications.

### CRYSTAL CAMERA CONTROLS

Modifications of Camera 95.00  
 Crystal camera control 250.00

PCS8SR Cable sync between any camera with a PC flash socket and Fullcoat recorder (RI, RII, MAG IV) 25.00

PULSE CONVERTER: for cable sync between any camera with a PC socket and an unmodified stereo record deck. The only requirement is that the recorder have separate record level controls for each channel. (2) 175.00

## Double System Projectors

Most projectors must be modified to run in sync with the Super8 Sound Recorders I, II and MAG IV. Projectors can not be modified to run in sync with any cassette deck.

Projector Modification Kit 35.00  
 Projector Modification (20) 75.00  
 Sync cable between Elmo GS1200 and S8S Fullcoat Recorders 25.00

## Super8 Sound Vertical Editing Benches

2 Gang Complete 2 gang bench (75) 1495.00  
 4 Gang Complete 4 gang bench (75) 1995.00

### BENCH COMPONENTS

Viewer Locating Plate 5.00

Minette S5 Viewer (10) 300.00  
 Minette S5 Viewer Sound Head 85.00  
 One Channel Amplifier (3) 135.00  
 Four Channel Amplifier (3) 200.00  
 Reel Spacers (Pair) 6.00  
 Reel Adapter (Pair) 6.00  
 Sliding Mag Head (2) 95.00  
 Differentials (Pair) 110.00  
 18 f.p.s. Modification Kit 18.00  
 Rewinds w/Friction Drags (10) 165.00  
 Rewind Shafts (Pair) 35.00  
 Spring Clamps 35.00  
 Editing Bench Top (33) 105.00  
 Editing Bench Motor (10) 280.00  
 Roller Outriggers for Sync Block 10.00  
 2 Gang Sync Block (25) 370.00  
 4 Gang Sync Block (28) 535.00  
 Editing Bench Instructions 10.00

## The Independent Producer Workshops

Super8 Sound is now offering a series of workshops emphasizing the latest in single & double system Super 8 production, editing, & special effects techniques. Please write for details.

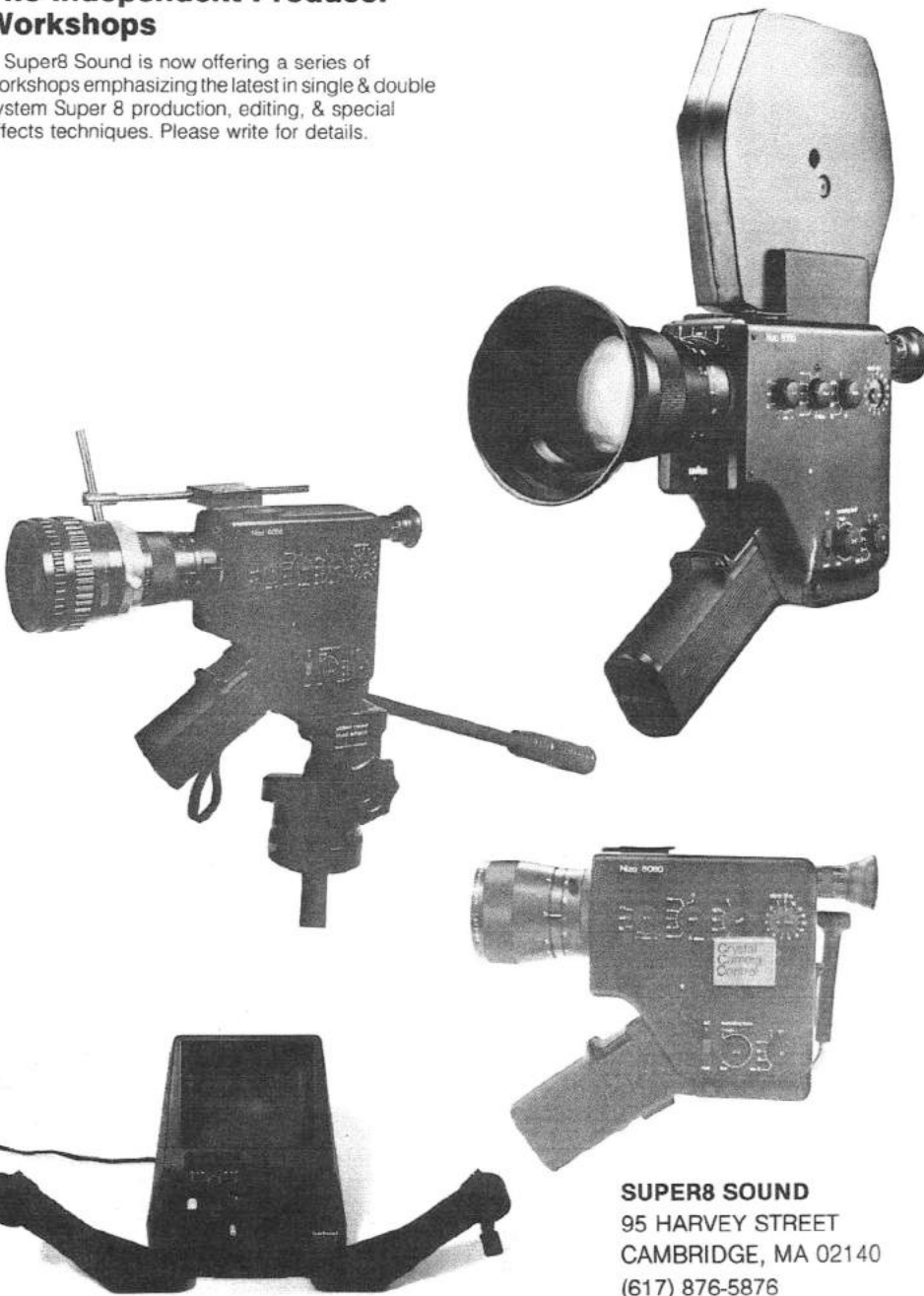
## The List:

This is a list of close outs, used equipment, odd and few of a kind items constantly updated. n/c

## Manuals

MAG IV Super8 Fullcoat Recorder 5.00  
 Super8 Sound Recorder I or II 3.00  
 2 and 4 Gang Editing Bench 10.00  
 J&K Optical Bench equipment & price 2.00  
 Camera Manuals 10.00

Super8 Sound handles many other products new and used. If there is an item that you do not see in our price list that pertains to Super 8 drop us a line and we will do our best to find it for you.



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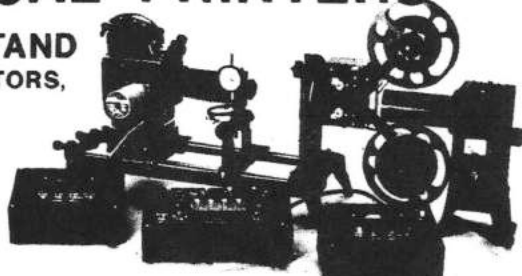


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\*For more detail on the specific services refer to display ads or write or call. Please mention that you found their reference in The Independent Producers Guide to Super8.

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