

“All cameras record images.

**But this is the first one
capable of affecting a film’s style,
as far back as the script conference
and as far forward as the sound mix.”**

Since the NPR is a radically new tool for the film maker, the possibilities that it opens up are of significance not only for the cameraman but also for the scriptwriter, the director and the producer.

The first half of this brochure, therefore, is addressed to the writer, director and producer as well as to the cameraman. It describes the fundamental design innovations of the NPR; and it deals with the sort of film making made possible by those innovations. The second half describes the camera's physical characteristics in detail.



ECLAIR NPR

Not an old design whose noisy movement has been blimped — this is a new design whose silent movement needs no blimp. Whereas most cameras on the market were designed before World War Two, the prototype NPR appeared in 1961. Of course, those pre-war designs have since been modified, "self-blimped," or scaled down from 35mm; but only the NPR people have had the advantage of being able to design a new camera from the inside out.

For example: the NPR motor's drive shaft directly turns the shutter, claw and registration-pin. No gears between motor and shutter; fewer moving parts: the classic formula for quiet running and efficiency. And the claw is wedge shaped. It *slides* quietly into the perforation and makes contact with its lower edge before the pull-down begins. Claw chatter isn't audible in the

older camera designs; noise from the movement's gears drowns it out. But in the NPR it would have been significant — so the new claw has been made a part of the new design.

Ten years ago, 16mm was a dirty word. Five years ago, zoom was another. Hand-held still is, in some quarters. But things change. Today's film maker has at his disposal fast, finegrain emulsions; sharp zoom lenses; portable, battery-operated quartz lights; lightweight transistorized motors; lavalier, shotgun and radio microphones; small, battery-operated tape recorders; and automatic sync-sound systems — all pointing to a faster, more spontaneous sort of film making. Now the availability of an intrinsically noiseless, portable, reflex 16mm camera completes this new equipment. Slowing things down with a blimp is no longer good enough.

Now that lip sync has become as cheap and easy as voice over, the scriptwriter should know what camera the crew will use. Sync sound has now become generally an aesthetic choice, not a financial one. A case in point: Jack Davidson makes industrial and educational films in San Francisco. A giant oil company recently hired him to make a twenty minute instruction film for them on location. Limited budget, so the treatment called for post narration, library score and wild effects.

But Mr. Davidson took his NPR, his Nagra tape recorder and a soundman with him on location, intending at least to give the film sync sound effects. Once there, they decided to shoot lip sync, too, while they were about it. The NPR's sync pulse generator and automatic clapper made shooting sync as simple technically as shooting and recording wild. No synchronous motors, no AC power, no clapstick; just camera, recorder and sync cord. Because both camera and recorder were small and silent, they did not intimidate the non-professional actors. And since the actors were sometimes unaware that the camera was running, Mr. Davidson was able to catch a lot of first-take spontaneity.

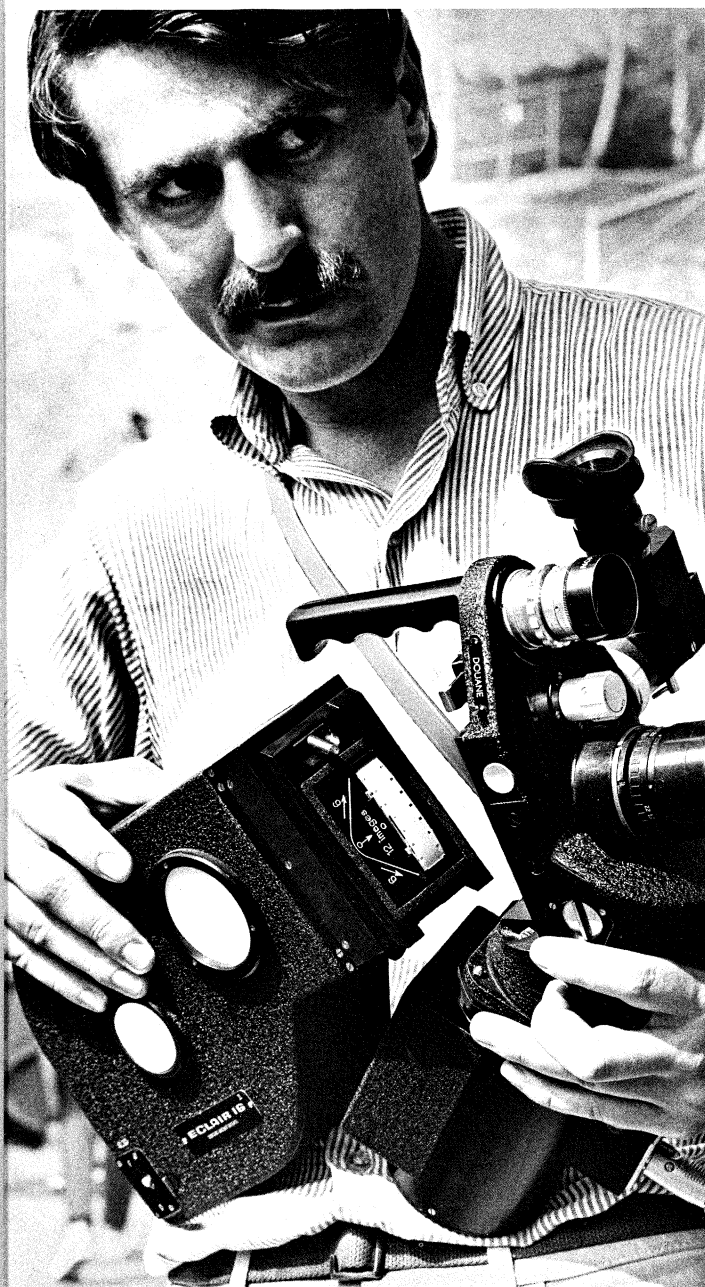
The camera encouraged spontaneity in the cameraman, as well as in the actors. Much of the footage was shot at the tops of oil derricks and at the ends of catwalks. While he climbed up ladders, the cameraman was able to carry his NPR in one hand, like a briefcase. When he got to where the action was, he was not fatigued. And he was able to shoot without delay, up where the hard hats were actually at work and the most unselfconscious.

The sponsor was surprised and delighted that the story told itself more realistically without narration and without costing more. These items pleased him too: no narration to write, no narrator to hire, no score, no wild effects to find and lay in. Shorter editing, cheaper sound mix. It's not news that, in most cases, sync sound works better. What is news is that, in this case, it cost less. It cost less because the NPR and Nagra made shooting sync sound as quick and easy as shooting silent, because the track was ready as soon as the rushes, and because the whole thing was shot and recorded with a two man crew. The choice of camera hasn't notably affected a film's style; until now.





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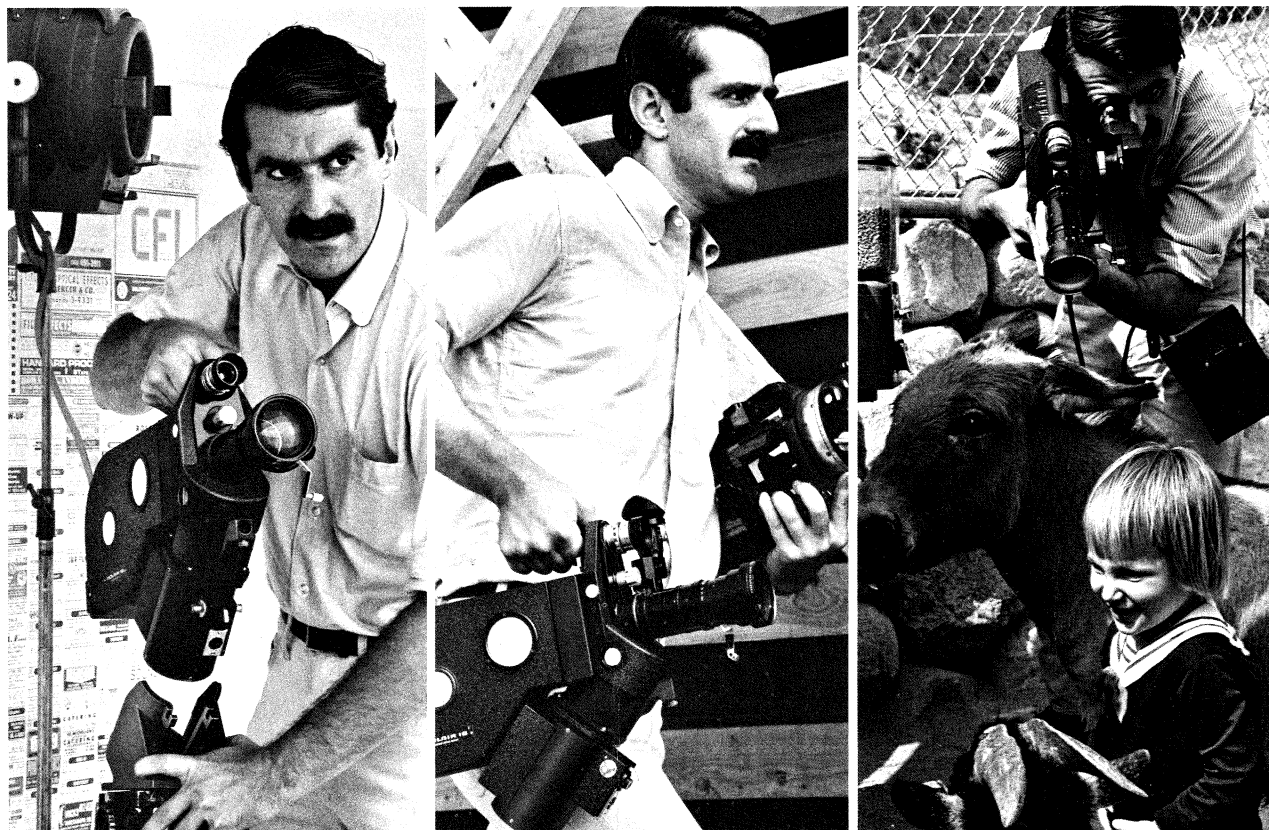
Changing the NPR's magazine takes about five seconds — time well saved, usually. Most cameras require two or three minutes. With the NPR, you snap off the old magazine, check the aperture, and snap on the new magazine; that's all. No threading; no loop to form; no blimp to climb in and out of. You don't need to touch the film at all. The film is threaded and the loop formed inside the magazine when you load it, before shooting starts.

The rear pressure plate is on the magazine; the aperture is on the camera body. When you snap off the magazine, the aperture, registration-pin and claw are right before your eyes, visible and accessible for inspection and cleaning. Both double and single system magazines are available for the NPR. Both types accept 400 feet of film and take five seconds to change. On page eleven are details of the magazine's coaxial format and loading method.

An unwritten law of unscripted film making is that you save your last few feet of film for the big scene you think will come up at any moment, thus missing some good cutaways. Then you run out during the big scene anyway. With the NPR you've lost only ten seconds of the action. In the studio and working from a script, the five second magazine change can prevent everyone on set going off to make a phone call when they hear: "Film runout." With the NPR, nobody but the director and cameraman need be aware of it.

Total mobility: cordless sync sound with Crystal Control. The regular NPR motor uses a sync pulse system with a sync cord between the camera and the tape recorder. But the accessory Universal Crystal Control Motor lets you shoot sync sound without any connection between camera and recorder. No sync cord connection. No radio signal connection. And, of course, no AC power cord.

The Universal Motor can be run synchronously with other cameras using crystal controls; or with a camera running on an AC power sync motor. It can be made to keep in sync with a tape recorder playing a pre-recorded track; which means that you can shoot cordless lip-sync Playback, even with music. The Universal Motor also functions as a variable speed motor, with tachometer. And, finally, its built-in sync pulse lets you use it with a sync cord, too.

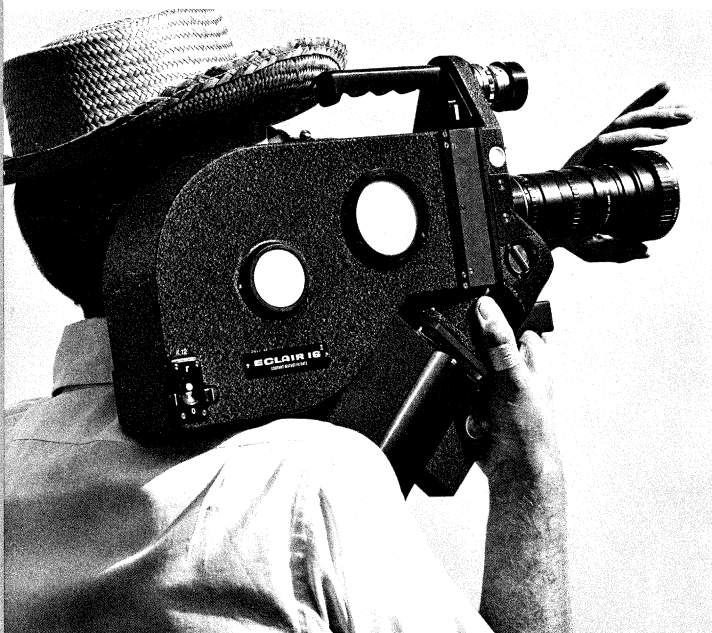


Speed of operation: getting more footage from a day's shooting. Sync sound without a blimp and five-second magazine changes aren't built into the NPR just to make life easier for the crew. The NPR also makes life cheaper for the *producer* because he's able to get more shot in a day. Shooting sync sound is just as quick with the NPR as shooting silent; and sync sound effects save editing and mix time.

The NPR lets you spend the day *shooting*, not setting up. Moving it from one setup to another is a fast, one-man operation. Since the lenses are not inside a blimp, you can get at them fast. You can see what's happening just off-screen in the viewfinder; no more microphones getting into the shot. When you run out of film,

the five-second magazine change means that it's just another take, immediately; or you can cover it with a cutaway and shoot right on.

There *is* something in our claim that this spontaneous camera is liable to pay for itself more quickly than most. Barry Brown, the New York Cameraman/Director, has written: "We can go into a place and, before the people are aware of it, we've made a whole half hour sync-sound film with two cameras in one day. The Eclair is the first and only 16mm camera that gives you this, and that's what's exciting about it. This camera is a fantastic tool. At the end of a day of running all over New York, you've got a film and no broken backs. It's the first camera I have used that really *works*."



Shoulder-resting — comfortable, therefore steady.

We all know what some hand-held shots look like. But you don't hand-hold the NPR — you *shoulder-rest* it. And a lightweight, silent camera that needs no blimp, no AC power and no clapstick can obviously go places where a tripod would be in the way.

It's not how much the camera weighs, but how the weight is distributed that determines steadiness. Every camera on the market, except this one, requires the operator to support its weight in front of him with both arms. There's no hand free to focus or change the aperture. Muscle fatigue causes camera shake. And because they are too complex to dismantle between shots, braces cause backache.

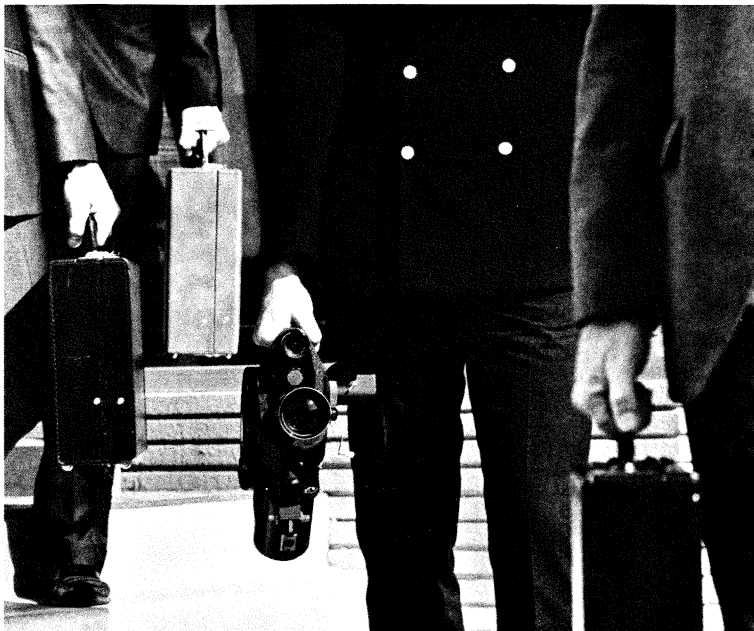
Most of the NPR's weight is over your shoulder. The feed and take-up rolls are side by side at the back of the magazine. Balance doesn't change as the film goes through. The motor nestles into your shoulder like a rifle butt, only higher. While your elbow rests against your side, you keep the camera in position with one hand. Many NPR users are getting steady shoulder-rested shots of still subjects at such focal lengths as 70mm. The secret is to *relax* your arm, lean back slightly and let gravity do most of the work.

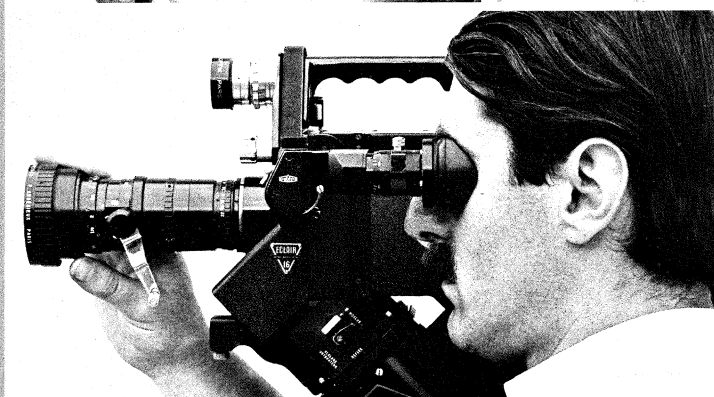
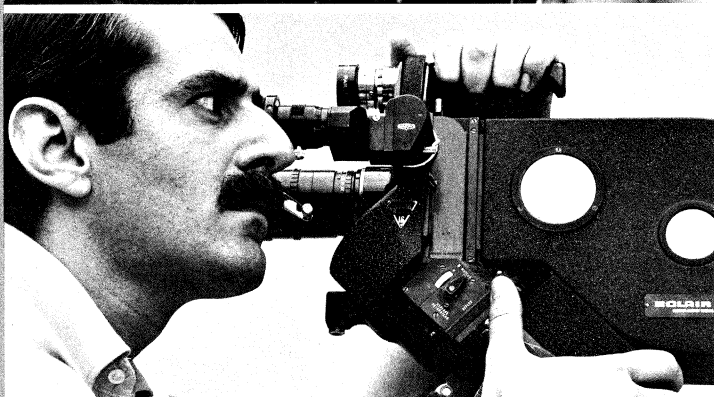
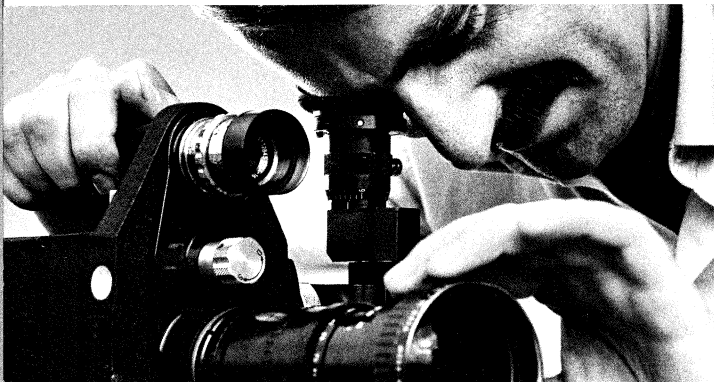
Turret accepts all lenses, can be rotated fast. The NPR is usually delivered with the Angenieux 12-120 zoom; and it is an excellent lens. Sometimes, though, you may need something faster, or wider, or longer; or you may want to mount one of your present lenses. No problem. Next year they may produce a better lens than now exists. It will fit the NPR.

Since the turret is of the positive cam type that locks into position, it can be rotated quickly and easily but cannot be shifted accidentally while changing focus. And with no blimp to get in and out of, lens changes are fast. The turret has a Camerette bayonet type mount that provides the precision seating required by heavy, wide-angle and zoom lenses. The other one is the standard "C" mount that is widely used throughout the film industry.

Many well-known lenses are being made with the Camerette mount. The turret is also available with two "C" mounts or with two Camerette mounts. Heavy lenses mounted in the "C" mount can and should be supported by the matte box rod.

The NPR is also an *unobtrusive* camera.





Rotating viewfinder and rotating eyepiece. The viewfinder, the eyepiece and the rubber eyecup all rotate independently of each other through 360°. By rotating the finder parallel to the camera's side, you can use it vertically for low angle shots or even backwards for unsuspected candid shots. On rising dolly or tracking shots, you can follow the action by rotating the finder or eyepiece as the camera moves.

With the finder in its "normal" horizontal position, you look along the axis of the taking lens. To check off-screen action, you can open the other eye and see the same scene. Or, by swivelling the eyepiece and eyecup, you can use the other eye to look through the finder, without moving your head.

The eyepiece is adjustable through 18 diopters, and you can lock it at any setting. The viewfinder and eyepiece can both be locked in any position, too. And the eyepiece has a shutter to keep out stray light, which you can open and close by gently pressing the rubber eyecup with your head.

Available as an accessory is a non-tilt image viewfinder, which keeps the image "vertical"—parallel to the side of the camera—when you rotate the finder.

Simpler finder optics, brighter finder image. Because the NPR's groundglass is at the film aperture, not at the eyepiece, the viewfinder's optics are simpler and thus transmit more light than the older camera designs. This combines with the brilliant glass on magnesium surface of the shutter mirror and the fine grain of the groundglass to give you nearly a stop more at the eyepiece.

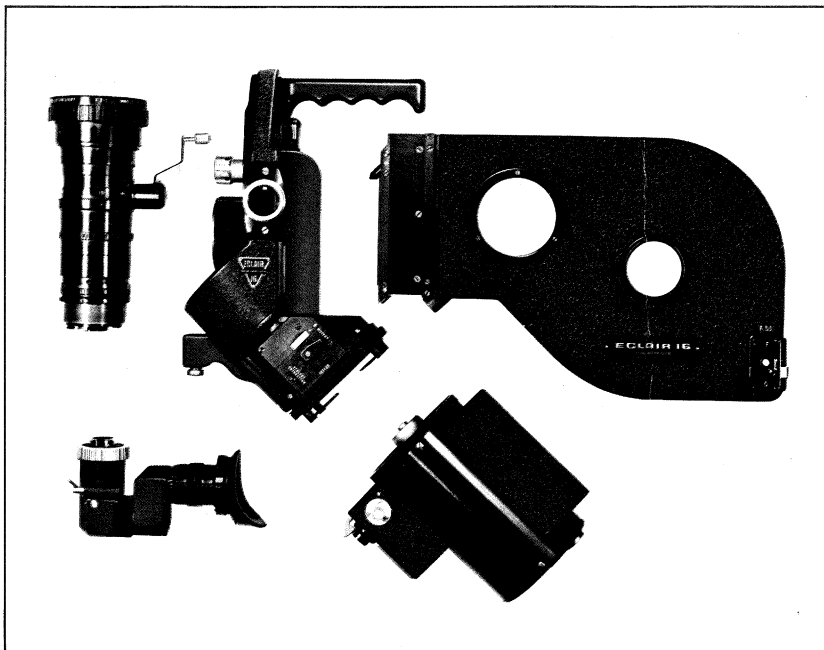
"We never focus before we shoot. We turn it on and *then* we focus; it's almost instantaneous. It's like the camera is attached to your eyeball. You *know* you've got it." That's the opinion of an NPR user writing in PMI magazine. Another NPR user has described it as "the first tool that really helps you to do what they're paying you for — to see."

Precise and rugged reflex viewing. Because it is built into the design, not added on, the NPR's continuous reflex viewing is the most accurate and the most reliable in the industry. The groundglass is rigidly mounted right beside the film aperture, safe inside the camera body. It can't get knocked out of alignment, as can groundglasses at the finder eyepiece. There are no lenses or prisms between the NPR groundglass and the taking lens. It reads what the film reads.

Extra viewing area on the groundglass. In fact, it reads more. The film aperture is marked on the groundglass by an engraved rectangle, as illustrated below. Only what's inside that rectangle is recorded on the film, of course. But the groundglass also covers the extra area shown in the photograph — almost 100% more than the aperture. Being able to see what's happening just off-screen has saved scenes, time and money for NPR users. The extra viewing area lets you see the microphone or set edge *before* it gets into the shot.

Variable shutter's horizontal movement. The mirror shutter rotates on a shaft just below the aperture and thus cuts across the frame from side to side. This means that you can pan horizontally with less strobe effect than with older cameras, whose shutters cut vertically. Of course, vertical tilts will give you *more* strobe than with the old designs; but our experience is that cinematographers pan much more often than they tilt. The shutter is also variable from 5° to 180°.





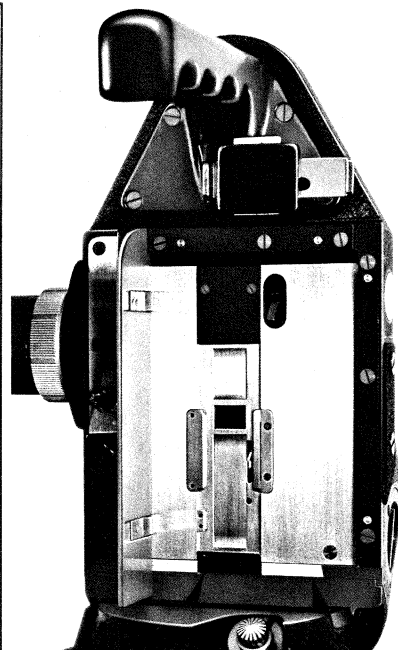
Component construction. The camera body incorporates the shutter, claw and registration-pin, the film channel, aperture and viewing groundglass, the lens turret, automatic clapper light and carrying handle. Everything else is detachable—the viewfinder, magazine, motor, lenses and tripod cradle. The components disconnect quickly and easily for transportation or maintenance. And you can mount any lens you choose, single or double system magazine, constant-speed, variable-speed, synchronous or crystal-control motors.

Accessible gate. The spring-loaded rear film pressure plate is on the front of the NPR's magazine. When you snap off the magazine, the film channel, aperture, side pressure plates, claw and registration-pin are right before your eyes on the camera body. Inspection and cleaning are fast and sure—important with soft color emulsions.

Steady image. The NPR has a single claw and registration-pin, which permits the use of single system sound. The registration-pin holds vertical unsteadiness to less than one thousandth of frame height; and it combines with the spring-loaded side and rear film pressure plates to ensure the image steadiness required for title work and 35mm blowups.

Silent movement. The NPR motor's drive shaft directly turns the shutter, claw and registration-pin. No gears between motor and shutter. And the claw is wedge-shaped. It *slides* quietly into the perforation and makes contact with its lower edge before the pull-down begins. No claw chatter. Fewer moving parts and smooth interconnections—the classic formula for quiet running and long wear.

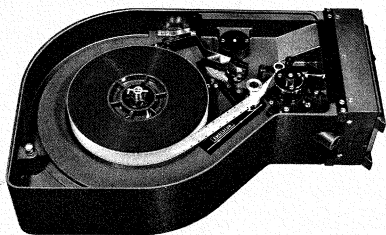
Constant-speed motor. Standard equipment on the NPR is a transistorized constant-speed motor that runs at 24 frames per second. Built into this motor are a sync-



pulse generator, an automatic clapper, a voltage regulator and a governor that activates a running light visible to the operator. If speed varies more than .2% from 24 fps, the light goes out. There is also a silent on-off switch that can be locked in the on position—or unlocked—with one finger.

Accessory motors. Three such motors are available. First: a variable-speed motor, equipped with a tachometer, that will run at any speed from one to forty frames per second. Second: a synchronous motor that runs on 120 volts and 60 cycles AC power. Third: a universal crystal-control motor that can be operated as a variable-speed, constant-speed or synchronous motor. An accessory tachometer is also available.

Tripod cradle. For tripod use, a flat-based cradle is part of the NPR's standard equipment. The motor rests inside the cradle, and can be quickly detached from it, as illustrated in the left hand photograph of the three on page five.



Quick-load magazine. You thread the film and form the loop when you *load* the magazine, not when you mount it on the camera. And most of the loading operation can be done in daylight. The feed and take-up spindles are side by side in the NPR's coaxial magazine. Each side of it is individually light tight. Once you have snapped the new roll onto the feed side spindle, engaged the film's end with the feed sprocket wheel and closed the lid, you can come out of the changing bag.

The loop is formed *inside* the magazine. Forming it and threading the take-up side are fast, simple and foolproof. You can watch what you are doing; but if you do it wrongly, built in noisemakers will tell you so when you run the camera. The magazine runs on the camera's motor. It accepts all daylight loading spools and up to 400 foot core loads; and its footage counters are marked for both spool and core rolls. On each lid there are white discs, on which you can note the emulsion or the subject matter.

Rechargeable battery. The NPR runs on a 12 volt DC nickel-cadmium sealed battery. It is rechargeable; and at normal temperatures it delivers enough power on one charge to run about 4,000 feet of film through the camera. The battery comes in a leather case with a shoulder strap; and the charger is available either built into this case or as a separate unit.

The sync-pulse system. Whereas filming sync sound with synchronous motors requires that camera and recorder run at precisely the same speed, the sync-pulse system allows them to run independently, and corrects for deviations from sync when the soundtrack is being transferred from 1/4-inch magnetic tape to 16mm sprocketed tape.

These corrections are made possible by a 60 cycle AC pulse generated in the camera's motor and transmitted automatically via the battery and sync cable to the tape recorder, where it is recorded in such a way that it is inaudible on normal playback. If camera or recorder run a little over or under speed, the pulse signal will

be a little over or under 60 cycles, always in exact proportion.

When the track is transferred to sprocketed tape, the sync-pulse on the 1/4-inch tape is compared with the 60 cycle current of the mains. If the pulse is found to be slightly faster or slower than the mains, the transfer system corrects for it by playing back the 1/4-inch tape slightly slower or faster respectively.

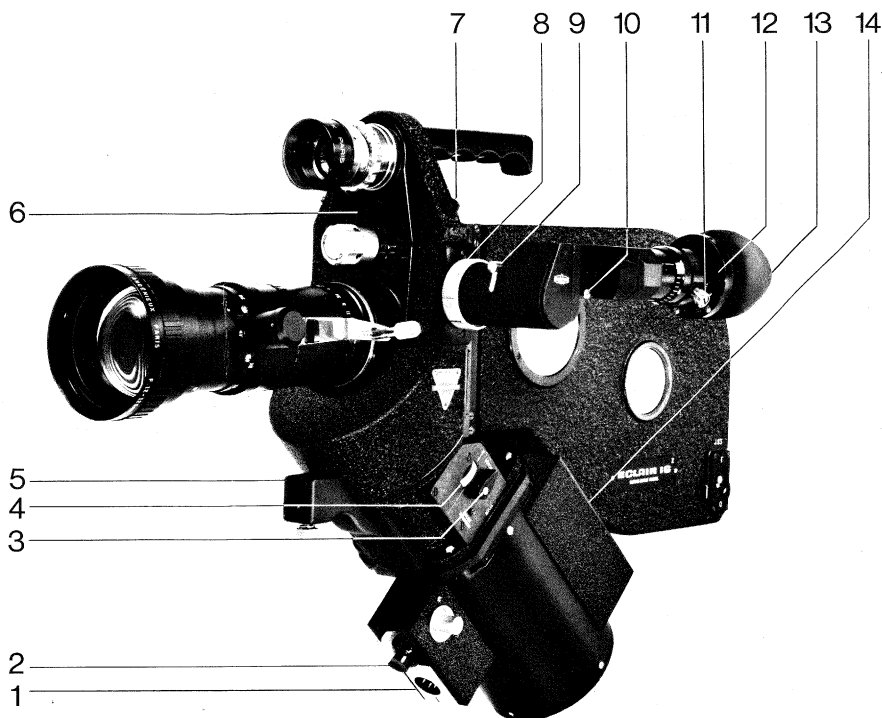
The automatic clapper. While there are various modifications of the automatic clapper, the basic tool is a small light, mounted in the camera body, that automatically establishes sync as soon as the camera is switched on, by fogging a few frames of film and putting a simultaneous signal on tape via the sync-pulse cable.

The Eclair crystal-control. This system gives you sync sound without any physical connection between camera and recorder. It is based on two independent crystal oscillators running in exact synchronization, one of them driving the camera via a phase comparison DC motor, the other delivering a pilot tone to the tape recorder. The Universal c.c. motor can be used as a variable-speed, constant-speed or synchronous motor.

Dustproof metal cases. The NPR is delivered with aluminum-covered cases, reinforced at the corners and edges. Lids are dustproof and equipped with carrying handles. Interiors are filled with foam, cut to fit camera body and magazines.

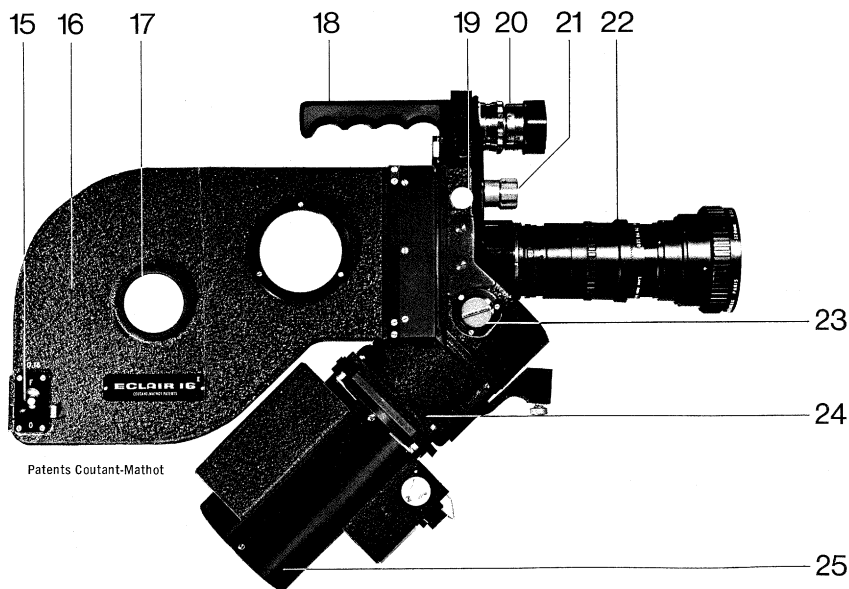
Some NPR accessories. Matte box with two filter holders. Matte box or long lens support rod. Single system sound magazines. 1,000 foot load magazines. Ground-glass marked for TV cutoff. Tripod with lens axis tilting head. Tachometer for constant-speed motor. Variable speed motor. Synchronous motor. Universal crystal-control motor. Lenshood/filter-slot for Angenieux 12-120 zoom lens. Well-known lenses with Camerette mounts. Lens turret with two Camerette mounts or two "C" mounts. Reversed-motor lower shoulder-rest format. Crystal-control sync sound system. Lightweight fiberglass barney.

- 1 power input socket
- 2 motor on-off switch
- 3 shutter control lever
- 4 shutter inching knob
- 5 matte box rod socket
- 6 rotating lens turret
- 7 automatic clapper
- 8 viewfinder coupling
- 9 viewfinder position lock
- 10 eyepiece locking screw
- 11 dioptics lock
- 12 eyepiece shutter ring
- 13 viewfinder eyecup
- 14 running tach light
- 15 magazine lid lock
- 16 magazine lid
- 17 film reminder disc
- 18 carrying handle
- 19 magazine release button
- 20 second lens position
- 21 cam turret lock
- 22 taking lens position
- 23 variable shutter control
- 24 camera body
- 25 constant-speed motor



Technical specifications:

Movement: single claw intermittent, bench type registration-pin. **Shutter:** variable from 5° to 180°, mirrored, cuts horizontally. **Aperture:** standard 1:1.33 ratio. **Image stability:** vertical unsteadiness less than 1/1000th of frame height. **Silence:** with film running and any lens mounted, noise level is 30 dbs at one meter from film plane. **Viewing:** mirror-shutter reflex. Finder and eyepiece rotate separately through 360°. Shuttered eyepiece has ± 9 diopter correction. Finder image shows extra viewing area approx. 100% greater than film aperture. **Lens turret:** rotates; one Camerette, one "C" mount. Cam type lock. Two Camerette or two "C" mounts available. **Motor:** constant-speed, governor-controlled, 24 fps; tach light accurate within .2%. Sync pulse generator, automatic clapper, built in. Accessory motors listed on page ten. **Battery:** 12V DC, 4ah, SAFT VO-4, 4000 foot capacity; voltmeter, charger, sync pulse relay, 4 pos. switch built in. Available with separate charger. **Magazine:** 400 ft. core or spool loads; footage counters for both; co-axial format.



Summary of NPR features:

5 second magazine change

Blimp-free silent running

24 fps constant-speed motor

Automatic clapper system

Built in sync-pulse generator

Registration-pin movement

Rotating finder and eyepiece

Extra viewing area in finder

Spool or core loads to 400 ft.

Adaptable component parts

Comfortable shoulder-resting

Low and unobtrusive profile

eclair

motion picture cameras since 1909

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