

JUNE 1971 ISSUE



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#### CANON F-1 Booster-T Finder

You poor souls who find yourselves compelled to photograph by the light of a single glow worm—take heart! Canon has provided a finder for the F-1 which will allow you to meter a light level calling for a 60 second exposure at f/1.2 on KII (ASA 25). If you still happen to be at it when the sun comes up, the same Booster T Finder will function in a light level calling for a 1/60 sec exposure at f/22 on Tri-X rated at ASA 800. That's a fair amount of flexibility.

Shutter speeds from the aforementioned 60 seconds to 1/60 second are provided on an easily accessible dial. On the same dial, by lifting a milled surrounding ring while pushing down on its center, you can crank in any film speed between ASA 25 and ASA 12,800. Operating the device calls for two separate procedures, one for the low-light range of 3 seconds or more of exposure, and the other for more civilized shooting conditions.

To use the booster you simply remove the standard pentaprism, set the F-1's shutter speed dial anywhere between 1 and 30, set the ASA of the film you are shooting on both the F-1's scale and the booster's scale, and slip the booster into the rails the original pentaprism rode. All guite simple to do. The unit locks in with an audible click -very reassuring. Rocking the booster's shutter speed dial between 1 and 60 will now lock it to the F-1's shutter speed dial-also guite solidly and detectably. In low light levels you turn the booster main switch on, rotate the booster's shutter speed dial to 3, lift a button to disengage the camera's and booster's shutter speed dials (with the

cameras being set at B in the process). compose and focus, close a shutter on the evepiece with another small dial. and lo and behold a little light on the top of the unit tells you that you are almost ready to shoot. Next you set the F-1 for stopped down metering and rotate either the aperture ring or the booster's shutter speed dial until an easily visible needle on top of the unit is centered in a black band. This is probably going to take a while, as at low light levels the needle creeps and creeps and creeps. But, if you really want a shot of that glow worm, another minute or so won't matter. Now, with the needle steady, you wind the film advance and press the shutter button on top of the booster. The mirror swings up and the friendly little light on top of the booster goes out, but flashes one second later, and each second thereafter until the time of exposure has expired-at which point the shutter goes thunk. By now the sun has come up and we can look into the brightlight mode's methodology.

To shoot in brighter light, select a shutter speed that is within the meter's high range and the light which allows easy reading of the booster's top scale (low range) goes out and another light on the side of the unit lights ups. At the same time the meter reading window, visible through the viewfinder, lights up. You will be able to see it as soon as you remember to open the shutter on the evepiece which, if you recall, you had to close to use low range. If you now release the stopdown lock on the F-1's body which you had to set to allow low-light metering with the booster, and turn on the F-1's meter switch (this instruction is missing from the otherwise adequate instruction manual packed with the unit), you are ready to meter-at full aperture-and shoot.

Sound complicated? I suppose it is, but with a bit of practice you soon get used to the manipulation required. On my first test with the unit I exposed Tri-X (ASA 400) in light levels calling for everything from f/5.6 at 5-seconds to f/2.8 at 1/60 and Pan-X (ASA 32) at f/8 at 30-sec to f/1.4 at 2-1/2 seconds. The results indicated that once you get used to the complex manipulation required to shoot with the booster, you can expect to get uniformly good results. That's a somewhat devious way to say that I blew my first few exposures by improperly operating the unit. Once I caught up with my errors and began to shoot properly, things straightened out and the contacts showed well exposed, uniform frames.

A note of caution is called for here. The booster finder's instruction booklet indicates that when the unit is used in its low illumination range, a centerweighted averaging system is employed. This is different nomenclature from that of the instruction booklet which covers the F-1 camera. The F-1's instructions state that a semi-spot system is employed with the normal meter system. All I am able to make of this is that in the low illumination range, the booster finder's separate metering system reads all of the scene visible in the viewfinder, but biases its reading centrally. But, when you switch to the booster finder's high illumination range, the camera's metering system cuts in, and this measures only that portion of the subject in the central rectangular frame in the viewfinder. Some clear wording and a few diagrams might make a useful addition to this device's instruction booklet.

About the only real complaint I can make concerning the functional controls is the softness of the spring holding the ASA speed ring in engagement with the shutter speed dial. It is quite easy to accidentally change the film speed setting while trying to center the needle with the shutter speed dial. All in all, the F-1 Booster T Finder offers an incredible extension of the camera's basic capabilities by combining a light sensitivity of 0.038 apostilb (the Luna Six's is 0.025, the Nikon Photomic Ftn's is 1.6. the Weston Master V's is 3.2) with automatically controlled shutter speeds of up to 60 seconds. Oh yes, I forgot to mention that batteries are self-contained and battery checking is provided. Complications aside, it is nice to know that if you need this sort of capability it is available as an F-1 module

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#### CANON F-1 Servo EE Finder

Mount this incredible module on an F-1 and zap!-you're part way to having an automatic camera-but only part way. The Servo EE Finder will allow you to concentrate on the action, compose, focus, and shoot. This eliminates having to worry about setting shutter speed and f-stop, assuming that the amount of light available is within the limits of the combination of lens mounted, speed of the film you are shooting, and the shutter speed you have selected. That's a long way to say that the shutter won't lock out if the light is too bright or too dim to shoot. Even without this feature, I feel perfectly justified in calling the Servo Finder incredible, particularly if it is used in conjunction with the F-1's motor drive unit. But more about that later. To begin with, nothing could be simpler than the attachment and operation of this module. The servo finder simply slips into the normal finder location with no complications-assuming, of course, that you have removed the normal finder first, and set the F-1's lens aperture ring to a green circle mark.

With the module in place, you load 10 penlight batteries into an ingenious battery pack (more about this later, too), plug in the connecting cord, press the battery check button to get an indicator light to tell you that you have sufficient power, and set the unit's main switch to M. This allows you to now open a tiny trap door on the side of the F-1's mirror box and attach a simple mechanical link, between the finder and the lens autodiaphram mechanism, with a single screw. It takes longer to tell than it does to do. Now you set the maximum aperture of the lens mounted on the F-1 on a small dial on the servo finder. Load the film of your choice, set its ASA rating on the shutter speed dial by lifting a milled ring that surrounds it, select the shutter speed you want to shoot at with the same milled ring, and you are ready to go.

If you leave the main switch in the M position, you simply use the F-1 manually as you would without having this elegant device mounted on top. This will drain the batteries and leave you worse off than you were before you mounted the servo finder, as you get no metering function from the servo finder at the manual setting, but it is reassuring to know that you can shoot in the manual mode if you so desire.

Better yet, set the main switch to a red mark and depress a little lever mounted concentric to the switch. If the lens cap is off and there is any light to speak of, you will hear a very low whine and see the aperture needle, clearly visible in the view-finder window, begin to move and come to a stop with no sign of hunting (over/under travel). The diaphram is now set to shoot for a proper exposure of whatever the F-1 is pointed at.

Another cautionary note here. This unit's instruction booklet also uses the nomenclature "centrally-weighted averaging system" to describe the way it looks at the world to perform its metering function.

Take your finger off the lever, depress the shutter button, and there you are. You've taken your first automatic picture. If the light doesn't change, and you go on shooting the same subject, just keep on winding and shootingthe servo finder will keep the previously obtained diaphram setting clamped in until you either push the lever again or turn the main switch to "L". With the main switch in the "L" position, the F-1 becomes fully automatic. The servo motor in the finder will continously change the diaphram setting to insure proper exposure in changing light conditions. However, you had best keep that little needle in the viewfinder window in mind because, as previously mentioned, the shutter button won't lock when you have too much or too little light. It seems the Canon people missed a desirable feature here. Another precaution to observe is to avoid shooting at speeds slower than 1/15 second with the servo finder in its automatic mode-the F-1's mirror will cut off light to the CdS cell, which

in turn activates the servo motor and invariably results in overexposure.

Now imagine setting the servo finder on automatic, and telling the F-1 to shoot all by itself-say once every 10 seconds-while you sit back and enjoy a brew (or something else of your choice). Sound like an interesting proposition? Thats exactly what you can do if you invest in the F-1's motor drive unit, which is where we go from here. Oh yes, before I forget, the servo finder is equipped with a little shutter which closes over the viewfinder window when you remove your eye to get at the aforementioned brew. This prevents light from entering through the viewfinder, affecting the CdS cell, and mucking up proper exposure.

I ran several rolls of film through the F-1 using the servo finder in conjunction with the motor drive, the results were more flattering to the motor drive than they were to the finder. In all cases, the servo finder decided to set the F-1 to shoot at about 1-1/2 stops less exposure than it should have. This is not quite as bad as it sounds at first reading, however, as good uniformity from frame to frame under widely varying lighting conditions was obtained. My first guess would be that the problem encountered was with an incorrect bias being supplied by the little dial on which the maximum lens aperture was set. This supposition would neatly account for the uniformly constant underexposure. The problem might also have been with the bias supplied by the shutter speed dial, as this was left set at 1/60, or the film speed dial which was left set at ASA 400, throughout the indoor testing. In either case, it is more important to note that the servo finder was able to track and maintain uniformity of exposure as the F-1 was swung from a subject in shadow to one against strong back-light. A minor adjustment would probably have cured the underexposure problem in this particular early production-run unit.

The servo finder has a metering range with ASA 100 film, of EV 3 (f/1.4 at  $\frac{1}{4}$  sec.) to EV 19 (f/16 at 1/2000 sec.). Its accommodated film speeds range from ASA 25 to ASA 2000. All the F-1's shutter speeds from "B" through 1/2000 sec. are provided. In spite of the underexposure problem encountered, I feel quite comfortable in stating that this device is beautifully conceived, engineered, and executed.

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But how about that shutter lock, Mr. Canon?



### CANON F-1 Motor Drive

It was like Christmas morning in Camera 35's editorial offices as we opened the boxes containing all the goodies this formidible F-1 would mount. When we got to the one containing the Motor Drive a lot of cool was blown as it was passed from hand to hand and greatly admired. While the unit is not very small (515/16" x 611/16" x 15/16"), or very light (1.59 lbs.), it sure can do a lot of things, and all of them well. For instance, it will shoot from three frames/sec. to one frame/ min. with no problem at all. Speeds in between include 2 frames/sec., 1 frame/sec., 1 frame/2 secs., 1 frame/ 5 secs., and 1 frame/10 secs. Speeds are selected by means of a large easily turned dial at the base of motor drive's handle. Settings are locked in, at each of the intervals mentioned, by a small pin which must be depressed before a new setting is possible. The motor drive can be used for unmanned photography by setting the shooting interval desired and coupling the unit to the Servo Finder to automatically take care of exposure. While I'm on the subject of coupling the servo finder and the motor drive, I had best mention a peculiar quirk of the switching set-up which is not covered in the instruction booklet packed with either of these units. This will take a while, so bear with me please.

If you remember, I mentioned that the servo finder gets its power from an ingenious battery pack. The reason I called it ingenious was that the same 10-penlight battery pack is used to provide power for the motor drive. This is accomplished by unscrewing and removing the very solid connector at one end of the servo finder's power cable (which, by the way, is coiled and extends to about six feet-a nice feature) and fitting a cap over the top of the battery pack. This is done with no sweat. The cap is held quite securely by a single large screw with a head that is simple to grab and turn. The cap contains the power cord for the motor drive (solidly fixed) and two connector sockets. Into one of these sockets goes the connector for the servo finder's power cable. So far so good. Now what the instruction booklet fails to mention is that when you plug the sturdy connector at the other end of the servo finder's power cable into the servo finder, and press the battery check button-nothing happens. This is due to the fact that power from the battery pack is controlled by the main switch on the motor drive unit. Until the battery pack is connected to the motor drive and its main switch is thrown to "C" or "S", there will be no juice for the servo finder. In actual use this situation may be a pain in the neck for the forgetful photographer. At the very least, it is something that should be pointed out in the instructions for both the servo finder and the motor drive. Are you still listening, Mr. Canon? While on the subject of the battery pack, I should mention that the other socket is for a remote control cable connector; more on this later.

Some other features of the motor drive include its ability to be used with any of the F-1's shutter speeds, depending on the film transport speed, except "B"; a built-in device which will. if you so desire, limit the number of frames to be shot in any single situation, from a single frame to 36 frames or anywhere in between; and safety interlocks which prevent the unit from tearing the film from its cassette spool after the 36th frame has been shot, or winding the bitter end of the film into the take-up magazine after the 250th bulk-back frame has been shot. (Yes, there is a 250 frame back which mates with the F-1 and its motor drive, but one thing at a time please.)

Nothing could be simpler than mounting the motor drive to the F-1. To do so, you simply unscrew the battery cover on the F-1's base, remove the base plate (which is secured quite adequately only by the aforementioned battery cover), and fit the motor drive to the F-1's body. It is secured in place with a single screw which fits into the F-1's tripod socket. No tools are needed. A coin will do for the battery cover and fingers will do for the motor drive's securing screw. Oh yes, I forgot to mention that you replace the battery in the camera and tighten its cover before you mount the motor drive on the body.

Now you simply plug in the power cable and you are ready to load and shoot. A plate affixed to the back of the motor drive serves as a constant reminder to the user of the shutter speed ranges available to you for any given film transport speed range. When the main switch is placed in the "C" (continuous) position you can use any shutter speed between 1-sec. and 1/2000-sec. when you shoot at between one frame every two seconds and one frame per minute. At one frame per second your slowest shutter speed will be 1/2 second. At two frames per second, 1/4 second is the lower limit. At three frames per second, set your shutter speed at 1/15 second or faster. A point to remember here is that when the motor drive is used with the servo finder, the servo finder's shutter speed lower limit of 1/15 second will always be the limiting factor. With the motor drive's main switch in the "S" (single exposure with each press on the trigger) position, any shutter speed between 1/2000 second and one second can be used.

The remote control feature of the motor drive works well and will be extremely useful to anyone trying to photograph wild life. When the remote control unit is plugged into the top of the battery case, you can, with this simple handheld control unit, walk off 16-feet in any direction, select continuous or single frame shooting, and fire away from concealment. Each time the shutter fires, an indicator lamp on the remote control lights to let you know all is well. A 36-foot extension cable supplied can be used between the battery pack and the remote control, extending its range to over 50 feet. This same 36-foot cable can be used between the battery pack and the motor drive if you want to tuck the batteries in your pocket and take them with you to those bushes, where you can keep them warm. The instructions do not mention this possibility. A separate

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battery tester can also be plugged in. Alas, you can't sneak off to those warm bushes with the battery pack if you are using the servo finder in conjunction with the motor drive, as the servo finder's power cable only extends to six feet. An extension cable for the servo finder, Mr. Canon?

Before we leave the motor drive, I do want to mention that the trigger location and feel are good, and that film loading and rewinding and unloading are quite simple with the motor drive in place; however, with the servo finder also mounted, rewinding can be something else—unless, of course, you have teeny-tiny fingers or a lot of patience. All in all, the motor drive is hard to fault. It is quiet in operation, faultless in function and simple and foolproof to use. My hat is off to the project engineer on this one.



#### CANON F-1 Film Chamber 250

The last of the Canon F-1's goodies I got to unwrap was hardly the least. It was a 250 frame (33 feet of film) capacity back for the F-1 that is almost as well conceived and executed as the F-1's other modules. Lets start with size (13-1/8" x 2-1/2" x 3-15/16") and weight (2.58 lbs.)-not small or light, but then, neither are its capabilities. The unit is, obviously, intended for use with the motor drive unit described previously. It uses the motor drive to advance the film but incorporates its own micromotor to drive its takeup magazine. Power for the micromotor is obtained via a connector which is automatically coupled when the Film Chamber 250 is attached to the camera and motor drive. By the way, Canon recommends that you do

not mount this unit on the F-1 after the motor drive is already in place. but, instead, reverse the procedure and mount the film chamber first then mount the motor drive. It is supposed to be difficult the wrong way around. Humbug, I am a clumsy oaf and I had not a bit of trouble doing it backwards. Two electrical interlocks are also connected through the automatic coupling. One prevents operation of the motor drive unit if the take-up side magazine has not had its light trap opened to allow for scratch free film movement into the chamber. Unfortunately, the supply chamber is not also interlocked; therefore, it will be possible to scratch film leaving this magazine if the user forgets to open the light trap on the supply side. The other interlock prevents the motor drive from operating after the end of the film has passed over a guide roller positioned just upstream from the take-up magazine. Aside from the supply side problems, this is a difficult unit to make a mistake with-it wants to help you.

The film magazines incorporated in the chamber are things of beauty. They are simple three piece units: inner case, outer case and spool. There are two indexing pins and a release pin on the top of the outer case. To take the magazines apart you depress the release pin and rotate the outer case in relation to the inner one. The light trap opens and the magazine slips apart. Nothing could be simpler. Canon makes a film loader to transfer bulk film into the supply magazine, but none was received with our box of goodies, making comment on this device impossible. The slots in the spool shafts are of a quick loading type and seemed to work quite well.

Both the take-up and supply magazines are identical, so no need to fear confusion on this score. Mounting the film chamber on the F-1 is quick and easy. The camera's back cover comes off with the simple depression of a single accessible pin. You then move two holder levers on the film chamber to an open position, align the chamber with the camera, and push the chamber into place until a set of index lines on the F-1 line up with a pair of dots on the chamber. The chamber is then locked in place by closing the two holder levers opened earlier. If you want to be as perverse as I was, and mount the chamber after the drive unit is in place, all that need be done is to

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shift the position of a connector release lever while pushing the chamber onto the F-1. This is quite easy to do. Now with the film chamber in place you rotate two large knobs, which control the light trap openings on the film magazines to their "open" position. This closes the light traps on the magazines and allows you to open the back cover of the film chamber. Here, again, there is an interlock, this time a mechanical one, which prevents the chamber's back from being opened if the take-up magazine's light trap is left open; however, if you have shot only a part of the 33' of film and forgotten to close the trap on the supply side before opening the back, you are going to have some foggy film in the supply magazine. At least the exposures you have made will be protected, but if you don't have a spare filled magazine you will be out of business until you rewind fresh film into the supply magazine. I do feel that an interlock is called for on the supply side-both for preventing the motor drive from running and the back from being opened, when the light trap on this side is in the wrong position-but I acknowledge that it will be a tough job to design one. Go to it, Mr. C.

The back of the chamber is opened by pressing a large release lever at the front of the take-up side of the unit. Once opened, the entire back comes off as a single unit and the magazines can be lifted out with a fair degree of ease after film winding knobs for the take-up & supply spools have been pulled out to free them. When returning the magazines to the chamber, the indexing pins at the top of each magazine prevent you from fouling up. They only go in the right way. Film threading presents no undue complications, and six guide rollers and a large pressure plate insure smooth even film transport. After loading the film, closing the back, and turning the light-trap control knobs to "CLOSE" (light-traps opened), the instruction booklet advises that six frames be shot with the motor drive. This clears the film exposed in loading and removes any sag from the take-up magazine. This done, you now set the number of frames remaining to be shot on a built in frame counter, and fire at will. The film chamber's frame counter will not control the number of frames to be shot. For this you must rely on the frame counter on the motor drive for bursts of up to 36 frames, or when the motor drive's frame counter is set to "FC" (film chamber) you can shoot any number of frames, relying on inspection of the film chamber's counter to let you know what's left. In any event, the film chamber's interlock will shut the motor drive off after the last frame has passed the gate.

Canon has even thought of the situation in which the poor hapless photographer finds himself with plenty of film but batteries which are too weak to run the motor drive. In this case, you can use the F-1's film advance lever to move film, frame by frame, but be sure to use the little winding knob at the bottom of the take-up chamber to wind the slack out of the take-up magazine each time a frame is wound—if there is no juice for the motor drive there is also no juice for the micro-motor.

While I can't quite remove my hat to the Canon people for the overall design of this fine piece of gear—because of those missing interlocks—I can say that I am sure that many photographers who are not quite so finicky will be delighted with the Film Chamber 250. Bob Nadler CAMERA 35

> The article "TESTED: CANON F-1 SYSTEM MODULES" is reprinted through the courtesy of CAMERA 35, published by U.S. CAMERA Publishing Corp., 132 W. 31st St., New York, N.Y. 10001.

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