PHOTO-GRAPHY reports on the Canon

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Handling the Canon F-1



BY BOB SCHWALBERG

Confronted as we are by so many fullfledged, focal-plane-shuttered 35-mm SLR camera systems with huge families of dependent lenses and accessories, it seems legitimate to ask:

"Why Canon F-1?"

The simple answer is that this is only the third fully-open SLR design to appear in the past dozen years with complete, front-, back-, top-, and bottom-interchangeability. This omnidirectional adaptability puts Canon F-1 in the same total versatility category as the redoubtable Nikon-F whose largest-of-all systems currently includes no fewer than 39 lenses, and the Topcon Super of measuring-mirror fame, the first SLR with through-lens light metering.

Frontally, the F-1 boasts a new generation of Canon optics plus some remounts of old favorites. (See Pop Photo's photokina-70 lens report in the January, 1971 issue.) New lenses marked FD work on the F-1 with full-aperture metering, and this new body accepts all older Canon FL and R lenses for stop-down metering. The only Canon SLR optic that won't fit the F-1 is their deep-seated 38-mm FLP f/2.8 for the Pellix camera.

Back- and bottomwise, F-1 offers a 250shot film magazine and an electric motor drive that cycles at just over three frames per second. What looks like a conventional camera baseplate is secured only by the meter battery screw-cover and when pulled off, it reveals all the electrical and mechanical elements for motor coupling.

The back panel is even more easily removable, and for this reason "QL," Canon's very successful quick loading system could not be included. The fully opening back panel, a multi-slotted, permanent take-up spool and some other refinements we'll get to later make F-1 loading as fast and as easy as any other non-QL system.

F 1 optical toppery includes four exchangeable screens, and five different viewfinder units. Each F-1 screen contains the unique glass condenser with beam-splitter for Canon FT style, selective through-lens metering in which the meter measures only an 8x12-mm central rectangular field.

Screen A duplicates the FT view with a central spot filled with good, big microprisms that really bust up out-of-focus imagery This is an excellent all-around screen that I've enjoyed using in my FT boxes, although it doesn't do much for my 19-mm retro. For shorties like this, and Canon's sensational new 17-mm FD f/4 104-degree distortionless wide-angle, screen B offers split-image focusing wedges. Away from their centers, both have matted full-focusing fields.

Screens C and D are straight groundglasses without central trickery C is unadorned, and D offers a grid alignment pattern. All F-1 screens show a dark central rectangle caused by the 50/50 reflection/transmission of the beam-splitter.

The F-1's five finder units are a standard

eye-level pentaprism, a Servo EE Finder, a Booster T Finder, a Speed Finder, and a conventional four-sided folding hood. Accessories include an elbow telescope, a hinged critical-focusing magnifier, rubber eye-cups, and dioptric correction glasses for individual eyesight problems.

Servo EE is a tall unit incorporating a pentaprism with meter-readout pickup and an electronically controlled aperture servosetting mechanism that works through a motor-driven side-arm whose operating tip enters the F-1 mirror box through a small slot at its left-hand side, covered by a hinged light-trap. The F-1 then becomes a fully automatic exposure camera of the shutter-preference type. It requires an external 12-volt supply, which can be drawn from the motor's power pack.

Impressively combined with the F-1 motor and 250-shot magazine, Servo EE makes possible unmanned automatic exposure control. The unattended camera will monitor changing light conditions, making aperture corrections.

Servo EE could also pay its way in manned situations when tracking fastmoving subjects moving between bright and dark areas. But as to Servo EE automation without motorization, I doubt me that it will find many followers. Too bulky for fast freehand scene-grabbing. Not so comfortable, carrying a battery-pack with entangling cord. Servo EE appears predestined for manned and unmanned motor-

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manship, although its automation allure cannot be denied.

Booster T is similar to the Canon FT Booster, except that it includes an eye-level prism and permits use of the F-1 body light meter. It is sufficiently sensitive to measure an exposure of 16 seconds at f/1.4at ASA 100, or four at ASA 400. This is 64 times, or six full *f*-stops more sensitive than the F-1's inboard meter which has an ASA 100 threshold of ¹/₄ sec at f/1.4, or 1/15 at ASA 400. Actually, even the most stygian-minded hand-held CdS meters, like the Gossen Lunasix or Sekonic Super Microlite, measure only one light-value less.

With Booster T aboard, the F-1 has two through-lens light meters: the selectivearea body meter, and the super-sensitive upstairs meter which employs two CdS cells at either side of the prism's exit face to integrate the full image field.

Alone, or in combination with Booster T, the F-1 body meter can be used for either full-aperture or stop-down readings with new FD lenses, and for stop-down readings only with all other lenses. These readings are made on an illuminated vertical readout bar imaged to the right of the viewing screen. The only numerical information imaged is the shutter speed.

External F-1 meter readout illumination comes from a translucent window set flush into the top deck. Great, if you have light from above. But out-of-doors at night, and in most indoor spectator events, to take only two cases, subjects may be well illuminated without there being any light at the camera position. And when this happens, the meter scale blacks out.

We fervently hope that Canon will add a small electrical illuminator, which could easily be carried by the "hot shoe" rails at the rewind shaft base, to their already groaning board of F-1 gear Both the F-1 inboard meter, and Booster T have easyto-use battery checkers. Well done!

Full-aperture FD-lens readings are made by a follow-pointer method, stoppeddown readings by zeroing the light needle against a fixed index near the base of the blank readout bar. The F-1 follower, a thin circle, disappears completely when the aperture stop-down lever at the front righthand side of the body is pressed. (*This is a multi-purpose complex for metering, depth*of-field preview, charging the self-timer, and locking the mirror up.)

Full-aperture readings can be made by turning either the shutter speed or lens aperture rings. The shutter speed controls only the meter needle; going to another speed has no effect on the follower. Similarly, the lens aperture controls only the follower circle.

Using the Canon F-1 with several of its FD lenses, we experienced a certain psychological problem because setting a larger *f*-stop causes the follower circle to move *downward*, and to a smaller opening, *upward*. I'm a firm believer that "*up is more, and down is less*," and my other follow-

pointer SLRs—Minolta SR T-101, Leicaflex SL, and Contarex S—work this way.

Aside from the speedier convenience of full-aperture light readings, which keep the screen at full brightness, I noticed that the needle was much more lively, and came to rest more swiftly and decisively than with the stop-down method. Under dim lighting conditions the needle often needed several tiresome seconds before finally sinking to its reading position. I also suspect that the F-1 meter is one light-value more sensitive with full-aperture reading, because of lowlevel CdS sluggishness.

Cross-coupling between the F-1's ASA index scale (ASA 25 to 2,000) and shutter speeds (1 to 1/2,000 sec) results in chopping off one meterable slow speed each time the ASA index is doubled. These chopped-off speeds are in no way blocked; the meter simply switches off when they are set. At this moment the readout bar turns red.

At ASA 25, the inboard system can meter all twelve speeds from 1 to 1/2,000 sec. ASA 50 begins for the meter at $\frac{1}{2}$ sec, ASA 100 at $\frac{1}{4}$ sec, and so on until at ASA 1,600/2,000 the range embraces only six exposure steps, from 1/60 to 1/2,000 sec.

With Booster T, the highest shutter speed that can be set is 1/60 sec, and with this unit out-of-range exposure times are mechanically blocked. The same process of chopping meterable speeds occurs when using Booster T with the inboard meter. Its range with ASA 25 is from 1 to 1/60



Visible at rear of lens: A) exposure aperture signal lever B) full aperture signal pin, C) automatic/manual aperture lever D) EE switch pin for Servo EE finder The ?) designation is for feature called "pin (reserved)" or "spare signal pin" in instructions. Could this mean that there's another Canon camera for FD lenses in the works?

sec, seven light values. At ASA 800/1,000, only 1/30 and 1/60 sec can be metered, and at ASA 1,600/2,000, only 1/60 sec.

The Booster T integrating meter can be read only externally, using a simple zeroing scale on its top deck, and it can be operated only by the stop-down method, even with an FD lens. In apparent recognition of its greater sensitivity, Booster T is calibrated from ASA 25 to 12,800. Between ASA 25 and ASA 3,200 this meter gives a range of approximately six light values. At ASA 25 it gives exposures from 3 to 60 sec, at ASA 3,200 from 1/60 to $\frac{1}{2}$ sec. At ASA 6,400 the range shrinks to five light values, between 1/60 and $\frac{1}{4}$ sec, and at ASA 12,800 only four steps remain, from 1/60 to $\frac{1}{8}$ sec.

Booster T's 3-to-60-sec exposure range is given through a stepless electromagnetic release, and during these long exposures, a lamp on the top deck blinks to say that the shutter is still open.

Another up-top F-1 accessory in the exotic category is its Speed Finder that produces an upright, unreversed image through a rectangular lens measuring 21x32-mm. This viewer contains two prisms, and the back one is rotated through 180 degrees so that the viewing element points straight back, or straight up. With an eye-to-finder distance of 60mm it shows the whole focusing screen, including the inboard meter's readout bar.

At longer eye distances only the central part of the screen can be seen, but it's at these distances that it becomes most useful, for unobserved waist-level shooting, for over-the-crowd shots with the F-1 held upside-down at both arms length, and for putting the camera in inaccessible spots, while still being able to check composition.

With a 50-mm lens, the Speed Finder gives an image magnification of 0.53X, which is considerably less than the approximately 0.8X obtained with the other prisms. The standard pentaprism, Servo EE and Booster T are optically identical, and give a long enough eye-relief so that even eyeglass sufferers-like this myopic reporter-can see the whole field comfortably, without scanning. The Speed Finder was conceived for fast action shooting, although I believe that it will find wider and quieter applications, and Canon points out that it can be used when wearing heavy goggles, or a crash helmet. But do you have to get off the motorcycle?

Many cameras open their backs by pulling up the rewind shaft. So does Canon F-1, but they've added a safety-catch: the shaft won't budge unless you also press down on a chromed button. Unlike most designs of this type, when the F-1 shaft is pulled up, its forked end is completely out of the cartridge chamber, making for fumble-free insertion. Right on, Canon!

The F-1's focal-plane shutter is one of the most accurate I've ever experienced, and oscilliscope traces indicate practically no deviation between effective slit exposure at the beginning, middle, and end of travel. Speeds between 1 and 1/30 sec were very well within the tightest tolerances, and the 1/60 through /500 range revealed no measurable error.

At 1/1,000 sec the shutter of our loaner proved to be 1/833 sec, and 1/2,000 was no more than 1/1,333 sec. There's no question of 1/833 sec being acceptable for 1/ 1,000 marking, and even though the 1/ 2,000 turned out to be an out-of-tolerance "fast thousandth," I was greatly impressed by its edge-to-edge wipe-on uniformity This shutter has a curtain travel time of 12 milliseconds, and synchs electronic-flash at 1/60 sec, or slower.

Shutter and mirror action are among the very softest and quietest that I've ever encountered. Unlike other Canon focal-plane shutters which produce a sharp ping, the F-1 makes a pleasingly dull thunk. The feeling of steadiness impressed me so much that I set the camera on a thin-stemmed champagne glass filled, sad-to-admit, with water. Permitting the self-timer to release the shutter at various speeds produced hardly a ripple.

The F-1 also has a beautifully smooth transport lever that swings 180 degrees, and can be multi-stroked for speed. I was, however, repeatedly annoyed by its 'ready' position, a mere 10 degrees behind the rear body-line. This really isn't enough for the ball of anyone's thumb, and Canon is hereby publicly implored to raise this to 20, or (even better) 30 degrees, so that a Canon neer can stay on target while advancing.

Canon F-1 is a lot of camera, and a lot of system. At *photokina-70* Canon previewed more than 25 lenses, and about 180 accessories. In the week it took to learn the F-1 with three lenses, four screens, and four finders, I discovered many little things that I didn't like, but many more big things that I liked very much. The sleek, black F-1 exudes confidence in everything that it does, right down to its chromed brass strap-lugs with stainlesssteel inserts to prevent wear.

Canon's meaning is clear: the professional or advanced non-professional who wants a totally adaptable SLR now has a third choice.

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This Servo EE head (r.) turns the F-1 into an auto-exposure camera. Side arm is motor-driven, enters camera at left side to control f-stop. Separate power pack is needed, but when the motor is used, both feed from the same pack. Lens on camera is FD 135-mm f/2.5. Closeup shows F-1 on side with Servo head attached, motor-driven aperture arm resting on lens. Lower part of arm has metal tip that enters body through slit. (emphasized here by a white line).



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Screw-cover for meter battery compartment and one end hook are all that hold F-1's baseplate on the camera. Underneath are complicated electrical and mechanical coupling points for the motor drive.





Speed Finder accessory's eyepiece can be twisted so that 21x32-mm viewing lens faces straight up (top photo, above) or straight back (lower photo, above). With 60-mm eye distance, photographer sees whole lens field plus exposure meter readout. Speed Finder can be used at waist level or high above head with upside-down camera for low and high shots.



Supersensitive Booster T Finder for Canon F-1 reads ASA 400 exposures down to four sec at f/1.4, gives exposures to 60 sec with flashing light to indicate that the shutter is open.

SPECIFICATIONS

- **Type:** 35mm single-lens reflex camera with focal plane shutter. Picture size, 24 x 36mm.
- Lens: Interchangeable lens group of FD series with automatic preset aperture system.
- Standard Lens: Canon FD 55mm F1.2, FD 50mm F1.4 and FD 50mm F1.8.
- Viewfinder: Removable pentagonal prism finder. Interchanegeable with Servo EE Finder, Booster T Finder, Speed Finder and Waist-Level Finder.
- Focusing Screen: Using Fresnel lens, standard focusing glass with microprism screen rangefinder and three other interchangeable kinds. With metering beam-splitting condenser.
- Field-of-View: 97% of actual picture area. 0.77x with standard 50mm lens at infinity.
- Finder Information: Meter needle and aperture needle, improper exposure warning red mark, fixed dot for stoppeddown metering use and battery check mark, shutter speed scale, out of meter functioning range warning signal.
- Lens Mount: Canon Bayonet type (FD) mount. FL and R series of lenses mountable.
- Function of Lenses: FD lenses; full aperture metering, coupled with automatic diaphragm. FL lenses; stopped-down metering, coupled with automatic diaphragm. R lenses; stopped-down metering, manually operated diaphragm.

Shutter Speeds: B, 1-1/2000. X contact at 1/60. Self-Timer: Built in.

Film Speed Scale: ASA 25-2000.

- Exposure Meter Coupling Range of Built-in Meter: With ASA 100 film, EV 2.5 (f/1.2 at 1/4 sec.)-EV 19 (f/16 at 1/2000 sec.).
- Meter Battery: One 1.3 v M20 (#625) mercury battery used.
- Servo Electric Eye Metering: Exclusive Servo EE Finder system enables shutter priority type EE.
- Ultra-low Illumination Metering: Exclusive Booster T Finder enables metering between EV 1.5 (f/1.2 at 1/2 sec.) and EV-3.5 (f/1.2 at 15 sec.) with ASA 100 film.
- Synchronized Flash: FP and X contact. Automatic time lag adjusting type.
- Canon Auto Tuning (CAT) System: Fully automatic flash control by recharge completion signal and focusing distance signal. Proper aperture is obtained by the meter matching needle system in conjunction with the Speedlite (exclusive), Flash Coupler, Flash Adapter. CAT acceptable with FD 50mm F 1.4, FD 50mm F 1.8 and FD 35mm F 2 lenses.
- Flash Synchronizing Range: 1/2000-1/125 sec. and 1/30 sec. or under; FP class. 1/60 sec. or under; Speedlite. 1/30 sec. or under; M, MF class.

Size: $98.7 \times 146.7 \times 43$ mm $(3\frac{7}{8}'' \times 5\frac{3}{4}'' \times 1\frac{11}{16}'')$.

Weight: Body; 820g (1.80 lbs.). With FD 50mm F 1.4 Lens; 1,180 g (2.60 lbs.).

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